# MANUAL

OVERHAUL

## ELECTRO-PNEUMATIC CONTINUOUS FLOW CONTROL UNIT

**P/N 22504-7**
**P/N 22504-9**
**P/N 22504-11**
**P/N 22504-13**

**35-20-118B**

H-118B

Jun 29/87

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## IMPORTANT WARNINGS

**WARNING:** ANY SERVICE OR OVERHAUL PERFORMED ON THIS APPARATUS SHALL BE DONE ONLY BY THOSE FACILITIES EXPERIENCED IN, OR BY PERSONNEL KNOWLEDGEABLE IN HIGH PRESSURE AVIATION OXYGEN EQUIPMENT. IF NONE ARE KNOWN, CONTACT SCOTT AVIATION OR ITS DISTRIBUTORS FOR NAMES OF AUTHORIZED SERVICE CENTERS.

**WARNING:** ALL PROCEDURES DESCRIBED IN THIS MANUAL SHALL BE PERFORMED IN AN AREA FREE OF OIL, GREASE, FLAMMABLE SOLVENTS OR OTHER COMBUSTIBLE MATERIALS. SUCH MATERIALS, AS WELL AS DUST, LINT, AND FINE METAL FILINGS ARE ALL POTENTIAL COMBUSTIBLES WHICH MIGHT, WHEN EXPOSED TO OXYGEN UNDER PRESSURE IGNITE AND RESULT IN AN EXPLOSION AND/OR FIRE.

**WARNING:** DO NOT ALLOW OIL, GREASE, FLAMMABLE SOLVENTS, OR OTHER COMBUSTIBLE MATERIALS TO COME IN CONTACT WITH PARTS THAT WILL BE EXPOSED TO PRESSURIZED OXYGEN. SUCH MATERIALS, AS WELL AS DUST, LINT, AND FINE METAL FILINGS ARE ALL POTENTIAL COMBUSTIBLES WHICH MIGHT, WHEN EXPOSED TO OXYGEN UNDER PRESSURE, IGNITE AND RESULT IN AN EXPLOSION.

22504
OVERHAUL MANUAL

# ELECTRO-PHEUMATIC CONTINUOUS FLOW CONTROL UNIT

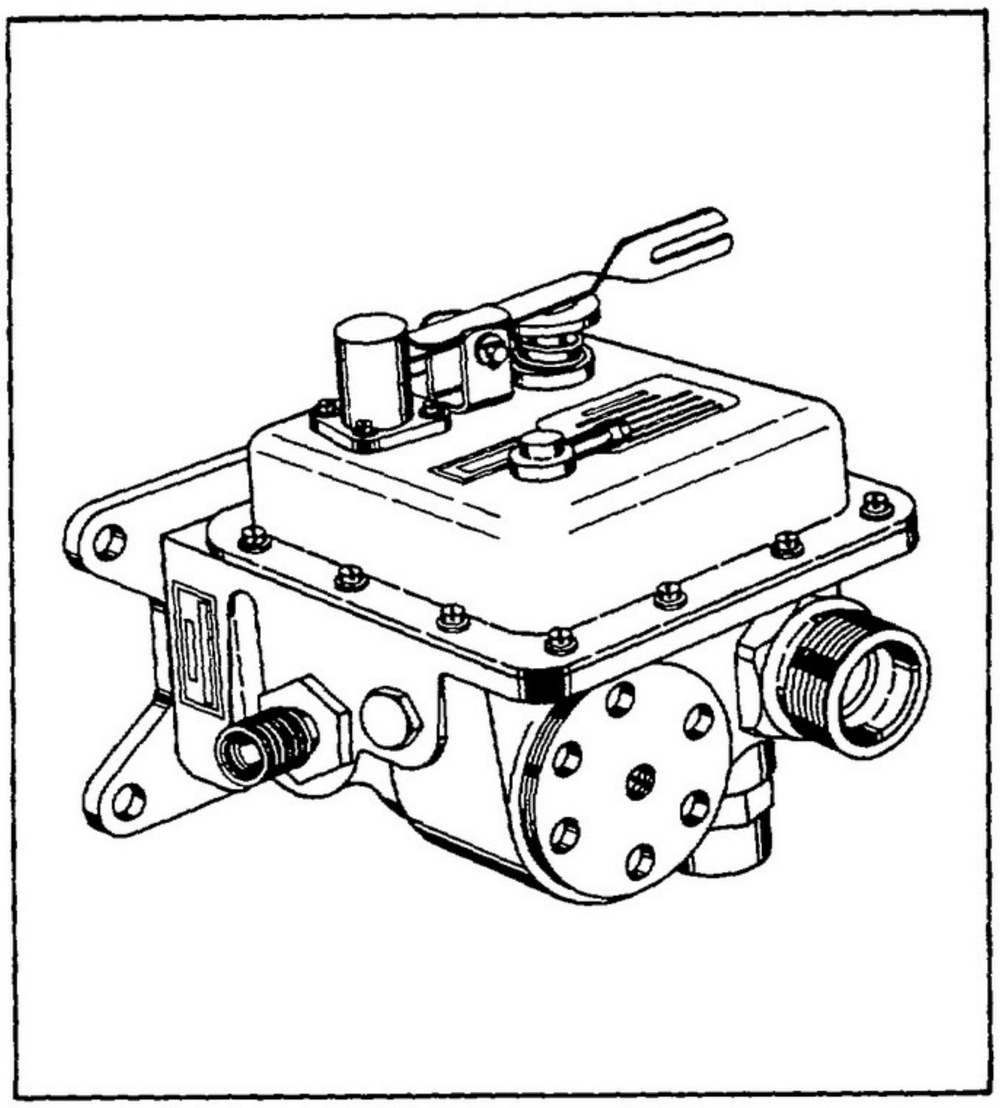
## 1. Description and Operation

### A. General

(1) This manual provides overhaul instructions with illustrated parts list for Electro-Pneumatic Continuous Flow Control Units, part number 22504-7, 22504-9, 22504-11 and 22504-13 (see figure 1).

### B. Purpose of Equipment

(1) The Electro-Pneumatic Continuous Flow Control Unit, hereafter referred to as the control unit, forms part of the aircraft emergency oxygen system when installed in a pressurized cabin. When the cabin pressure drops below a pressure equivalent to 13,250 to 14,500 feet altitude for 22504-7, 22504-9 and 22504-13 and to 14,000 to 15,000 feet altitude for 22504-11, the control unit automatically initiates and controls the flow of oxygen from a high pressure gaseous oxygen source to the passenger mask compartments. The control unit may also be activated electrically at any altitude.



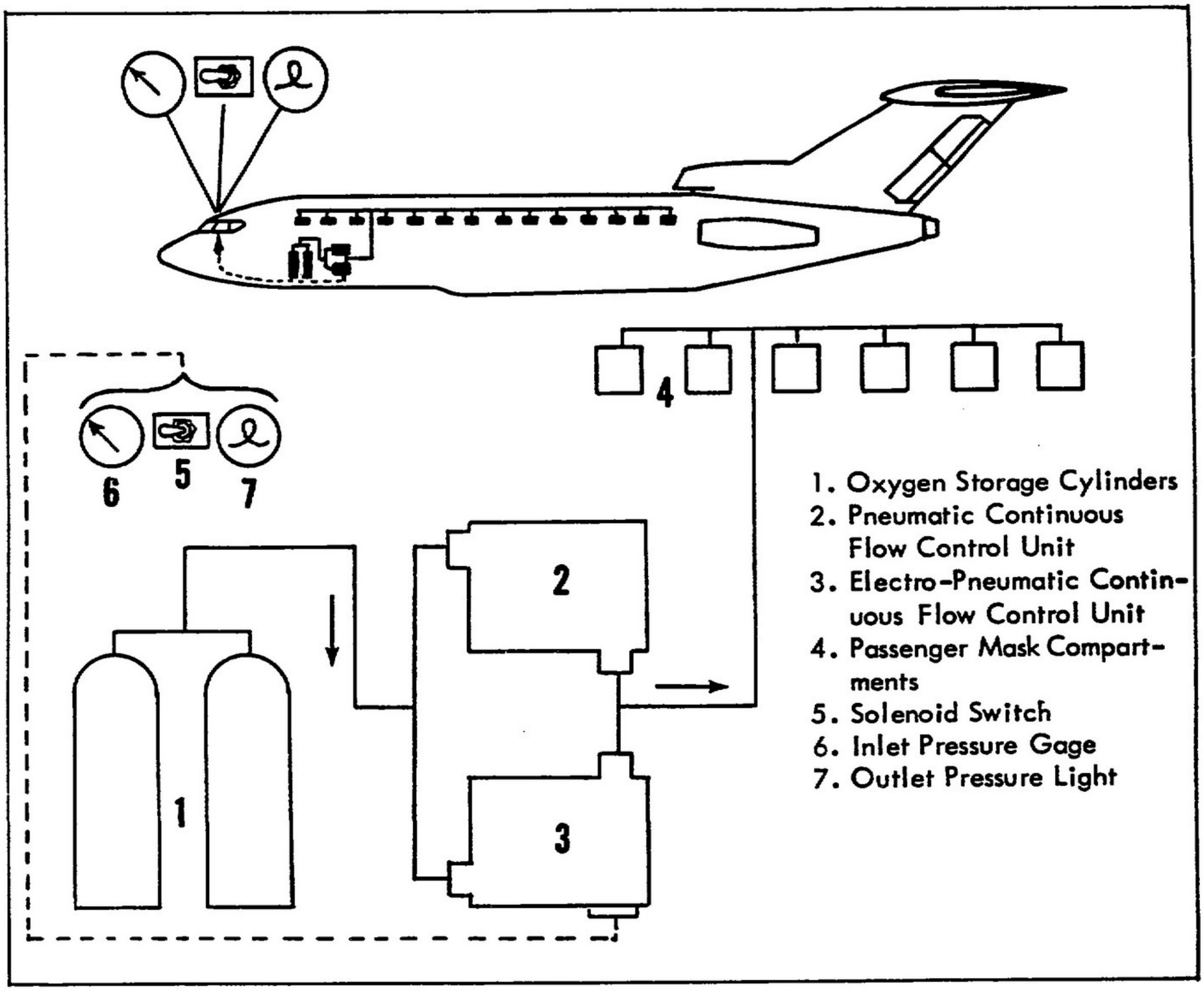
Electro-Pneumatic Continuous
Flow Control Unit
Figure 1

### C. Typical Installation

(1) A typical pressurized cabin installation is shown in figure 2. An oxygen source consisting of a series of high pressure oxygen storage cylinders (1) is connected to the inlet of Pneumatic Continuous Flow Control Unit (2) and Electro-Pneumatic Continuous Flow Control Unit (3) to the passenger mask compartments (4).

NOTE: Refer to Overhaul Manual, 35-20-118A, for complete overhaul instructions for Pneumatic Continuous Flow Control Unit (2).

(2) Control units (2 and 3) are normally closed. In the event of cabin decompression (cabin pressure drops below 13,250 to 14,500 feet for 22504-7, 22504-9 and 22504-13 or 14,000 to 15,000 feet for 22504-11), the aneroids within control units (2 and 3) are preset to automatically open and control the flow of oxygen to passenger mask compartments (4). If required, the system may be activated manually at control unit (2) and/or electrically by a crew member from the cockpit of the aircraft through control unit (3), to supply oxygen to passenger mask compartment (4). (Switch (5) controls electrical actuation of control unit (3).)




Typical Installation
Figure 2

(3) Inlet pressure is monitored continuously on gauge (6) in the cockpit of the aircraft through a pressure transducer in control unit (3). When the system is activated either automatically, manually, or electrically, light (7) in the cockpit of the aircraft and in the passenger compartment is illuminated indicating presence of outlet pressure. This outlet pressure indication is possible through a pressure switch in control unit (3).

NOTE: The 22504-9 and 22504-13 control units (3) do not contain a pressure transducer (see IPL figure 1).

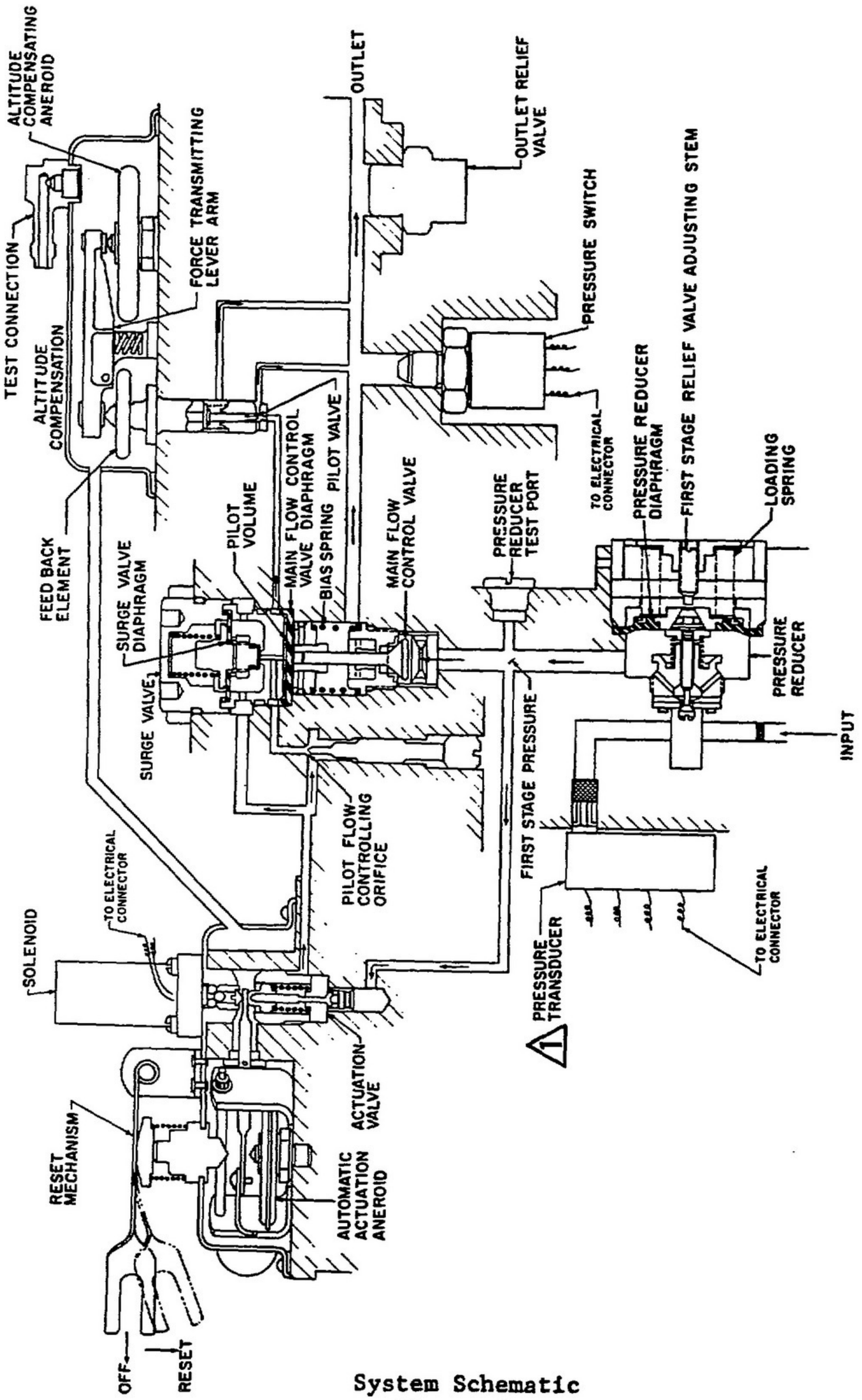
D. Operation (See figure 3)

(1) Pressure Reducer. When oxygen at pressures ranging from full cylinder pressure (1850 psi) down to 300 psi is introduced at the inlet of the control unit, the miniaturized single stage pressure reducer reduces the pressure to a relatively constant value of approximately 100 psig. This controlled first stage pressure is routed to the pilot-operated main flow control valve and to the actuation valve.

(2) Automatic Actuation. At an altitude of 13,250 to 14,500 feet for 22504-7, 22504-9 and 22504-13 or 14,000 to 15,000 feet for 22504-11, the aneroid in the automatic actuation mechanism develops sufficient force to overcome the tension of the leaf spring. The force trips the leaf spring past center and moves the lever against the actuation valve, which then opens and allows the first stage pressure to be applied to the pilot flow controlling orifice and to the surge valve.

(3) Electrical Actuation. The system may be actuated electrically at any altitude by momentarily energizing the solenoid switch in the cockpit of the aircraft. Actuation of the solenoid within the electro-pneumatic control unit overrides a detent causing positive opening of the actuation valve, overriding (by-passing) the automatic mechanism. The locking detent holds the unit in the "ON" mode until manually reset.

(4) Manual Reset. (Cabin pressure must be below 12,000 feet altitude). After actuation (automatic or electrical) the control unit may be reset by depressing the manual reset mechanism. The automatic actuation and electrical actuation capabilities are retained after resetting.




System Schematic
Figure 3

⚠1 PRESSURE TRANSDUCER

**NOTE** ⚠ THE 22504-9 AND 22504-13 SERIES CONTROL UNITS DO NOT CONTAIN A PRESSURE TRANSDUCER

(5) Pressure Surge. When the actuation valve opens, first stage pressure is admitted underneath the surge valve diaphragm. The pressure in the closed volume above the surge valve diaphragm is initially at ambient. At actuation, the sudden large pressure differential opens the surge valve and admits oxygen into the pilot volume above the main flow control valve diaphragm. With the surge valve open, the pressure in the pilot volume is then nearly equal to the first stage pressure. This occurs because the restriction of flow from the pressure reducer to the pilot volume is small compared to the restriction from the pilot volume to the unit outlet via the pilot valve.

This pilot surge pressure acting on the main flow control valve diaphragm opens the main valve fully and allows oxygen to flow into the outlet. This flow is sufficiently large to pressurize the aircraft system (approximately 670 cu. in.) to a pressure of 50 psig in 4 seconds. The outlet pressure builds up to a value slightly less than the first stage pressure.

The pressure in the closed volume above the surge valve diaphragm gradually rises as oxygen flows through the equalizing orifice located in the surge valve diaphragm assembly. After a period of 7 to 15 seconds, when the pressure differential across the surge valve diaphragm is reduced to approximately 10 to 15 psi, a spring closes the surge valve. Now there is a definite restriction to flow from the pressure reducer to the pilot volume. The pilot pressure becomes equal to the outlet pressure and the bias spring closes the main flow control valve.

(6) Pilot Flow. During normal operation, the pilot oxygen (approximately 1.3 SLPM) flows from the first stage through the actuation valve, through the pilot flow controlling orifice, through the pilot volume, through the pilot valve and into the outlet. The magnitude of the pilot pressure depends on the relative restriction upstream and downstream of the pilot volume. The upstream restriction consists of the pilot flow controlling orifice and is fixed. The downstream restriction consists of the pilot valve, and is variable.

(7) Pilot Operation. The altitude-compensating aneroid exerts a force, tending to close the pilot valve, which is counteracted by the force of the outlet pressure acting on the feedback capsular element, tending to open the pilot

valve. The pilot valve moves in the direction of the unbalanced force. If the unit outlet pressure is higher than is demanded by the feedback element, the pilot valve opening increases, thereby decreasing the pilot pressure which in turn decreases the opening of the main flow control valve and reduces the output flow. If the feedback element demands a higher outlet pressure than is present in the outlet, the pilot valve opening decreases, increasing the restriction to flow, which raises the pilot pressure and increases the output flow.

(8) Altitude Compensation. From ground level to approximately 17,000 feet, the altitude compensating aneroid does not contact the force transmitting lever arm and has no effect on the unit performance.

The feedback capsular element is pre-loaded so that a constant outlet pressure of approximately 4 psig is required to keep the pilot valve open. At approximately 17,000 feet the aneroid contacts the lever arm and develops a force, increasing linearly with decreasing ambient pressure, which adds to the pre-load force of the feedback element, and produces a corresponding increase in the outlet pressure.

(9) Relief Valve (First Stage). The first stage pressure relief valve is integral with the inlet valve actuating shaft and seats on the pressure reducer diaphragm.

When the inlet valve is closed, a further buildup in the first stage pressure due to any leakage will first remove the force of the loading spring on the inlet valve. This is the force that balanced the force due to the inlet pressure. During this time there is no movement of the assembly. Then with a further pressure buildup the diaphragm assembly begins to move back against the loading spring carrying the relief valve with it.

When the relief valve contacts the rigid stop, the motion is arrested until the force of the first stage pressure against the relief valve is transferred from the diaphragm to the stop.

When the force of the pressure acting on the smaller annular diaphragm area equals the force of the loading spring, the diaphragm moves away from the relief valve and venting begins.

(10) Relief Valve (OUTLET). A high flow capacity outlet pressure relief valve is incorporated to ensure that outlet pressure can never exceed 135 psi.

2. Disassembly (See IPL figure 1)

NOTE: Prior to disassembling a 22504 control unit, note the dash number and determine the parts applicable to that assembly (refer to "EFFECT CODE" column of the Illustrated Parts List). Disregard any instructions that do not apply to the particular assembly being overhauled.

A. Remove mounting plate (27) by removing screws (28) and washers (29).

B. Remove cover subassembly (19) and gasket (26) from housing assembly (163) by removing screws (3) and washers (4).

C. Straighten and remove pin (6) to remove pin (5); then remove washers (7) and leaf (8).

D. Remove identification plate (2 or 2A) from cover subassembly (19) only if replacement is required.

E. Unthread and remove button (9); then remove washer (10), spring (11) and plunger (12). Remove packing (13) from plunger (12).

F. Remove lens (14) by removing screws (15) and nuts (16); then remove plate (17) and gasket (18).

G. Remove solenoid (20) and gasket (24) by removing screws (21) and washers (22). Remove connectors (23) and tubing (25) from leads of solenoid (20) only if the parts are to be replaced.

H. Remove lever assembly (33 through 39) from housing assembly (163) by removing screws (30) and washers (31 and 32).

I. Remove setscrew (33) and screw assembly (34).

J. Remove lever assembly (35) from lever support (39) by removing nut (37) and washers (38) from pin (36). Remove spring (40).

K. Unthread and remove aneroid assembly (41) and washer (42).

L. Unthread and remove capsule assembly (43); then remove packing (45). Remove lock nut (44) from end of capsule assembly (43).

M. Remove pin (46), stem (47), spring (48) and seat assembly (49) from housing assembly (163).

N. Remove indicator assembly (53 through 59) from housing assembly (163) by removing screws (51) and washers (52).

O. Remove indicator (53) from lever assembly (59) by removing screw (54) and washer (55).

P. Remove washers (57 and 58) from lever assembly (59), then slide the lever assembly out of plate (56).

Q. Remove tie bolt (60) from spring frame (66) by removing nuts (61). Remove leaf spring (62) from spring frame (66).

R. Remove setscrew (64) and insert (65) from housing assembly (163). Then unthread aneroid assembly (63) from housing assembly (163).

S. Remove spring frame (66) from housing assembly (163) by removing screws (67) and washers (68); then remove shim(s) (68A).

T. Unthread detent assembly (50) from housing assembly (163).

U. Unthread and remove housing (69); then disassemble valve assembly (71 through 75) as follows:

NOTE: Use wrench (10, figure 1002) to remove housing (69, IPL figure 1).

(1) Remove nuts (71 and 72) from stem (74).

(2) Spring (73) and seat (75) are free to be removed from stem (74).

V. Remove packing (76) from seat (75).

W. Remove screw assembly (80 and 81) from the housing assembly; then remove insert (80) from screw (81). Remove packing (82) from end of screw (81).

X. Remove electrical leads from terminals of pressure switch (91). Remove washers (90 and 91A). Unthread the pressure switch from housing assembly (163); then remove packing (92) from end of pressure switch.

Y. Remove electrical leads from terminals of pressure transducer (93). Remove the pressure transducer from housing assembly (163) by removing screws (94) and washers (95, 96, and 96A).

Z. Remove screen (97), sleeve (98), packing (99) and ring (100) from inlet of pressure transducer (93).

AA. Remove electrical cable assembly (85) from housing assembly (163) by removing screws (86) and washers (87).

AB. Unthread and remove plug (83); then remove packing (84) from end of plug (83).

AC. Unthread and remove relief valve (101); then remove packing (102) from end of relief valve (101).

AD. Unthread and remove union (103); then remove packing (104) from end of union (103). Remove filters (105 and 106) from housing assembly (163).

AE. Unthread and remove fitting (107); then remove packing (108) from end of fitting (107). Remove screen (109) from housing assembly (163).

AF. Unthread and remove screw (110) from cap (111); then unthread and remove cap (111) after removing setscrew (112) and insert (113).

NOTE: Use wrench (4, figure 1002) to remove cap (111, IPL figure 1).

AG. Remove spring (115) and rings (114 and 116); then unthread and remove retainer (117). Remove ring (118) and diaphragm assembly (119) from housing assembly (163).

NOTE: Use wrench (4, figure 1002) to remove retainer (117, IPL figure 1).

AH. Remove poppet (120) from diaphragm assembly (119). Remove packing (121) from poppet (120).

AI. Unthread and remove valve assembly (123 through 128) from housing assembly. Remove packing (129) from the valve assembly. Disassemble the valve assembly as follows:

(1) Unthread head (123) from stem (125).

(2) Remove spring (124), guide (128), washer (127) and seat (126) from stem (125).

AJ. Unthread and remove locknut (130) and cap (131). Remove disc (133) and spring (134); then remove packing (132) from end of cap (131).

NOTE: Use wrench (8, figure 1002) to remove lock nut (130, IPL figure 1) and wrench (7, figure 1002) to remove cap (131, IPL figure 1).

AK. Remove orifice and diaphragm assembly (136 through 143) and disassemble as follows:

(1) Unthread and remove setscrew (136) from orifice assembly (143); then remove screens (137 and 139) and packing (138) from the orifice assembly.

(2) Remove nut (140), ring (141) and diaphragm (142) from other end of orifice assembly (143).

AL. Remove body (144), washer (146) and diaphragm (147) from housing assembly (163); then remove packing (145) from end of body (144).

AM. Remove valve assembly (150 through 156) from housing assembly (163).

NOTE: Use wrench (9, figure 1002) to remove the valve assembly from the housing assembly.

AN. Remove packing (157, IPL figure 1) and ring (148) from the valve assembly; then disassemble the valve assembly as follows:

(1) Unthread retainer (150) from valve stem (154). Remove guide (151) and spring (152) from end of stem (154).

(2) Unthread nut (153) and remove stem (154) from seat assembly (156).

(3) Remove guide (155) from seat assembly (156).

AO. Remove valve (158) from housing assembly (163).

AP. Remove instruction plate (159) and name plate (161) by removing screws (160 and 162) only if the plates are to be replaced.

3. Cleaning

WARNING: DO NOT ALLOW OIL, GREASE, FLAMMABLE SOLVENTS, OR OTHER COMBUSTIBLE MATERIALS TO COME IN CONTACT WITH PARTS THAT WILL BE EXPOSED TO PRESSURIZED OXYGEN. SUCH MATERIALS, AS WELL AS DUST, LINT, AND FINE METAL FILINGS ARE ALL POTENTIAL COMBUSTIBLES WHICH MIGHT, WHEN EXPOSED TO OXYGEN UNDER PRESSURE, IGNITE AND RESULT IN AN EXPLOSION.

A. Remove dirt and foreign particles from equipment by wiping with a clean lint-free cloth, or by blowing with clean oil-free air or nitrogen.

B. Metal parts which come in contact with oxygen and have become contaminated with grease can be cleaned as follows:

(1) Use a vapor degreasing method with stabilized 1,1,1 trichloroethane (manufactured by V71984) conforming to Specification MIL-T-81533. Blow clean and dry with a stream of clean, dry, oil-free air or nitrogen.

WARNING: USE 1,1,1 TRICHLOROETHANE IN A WELL VENTILATED AREA ONLY. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN AND INHALATION OF TOXIC VAPORS.

4. Inspection/Check

A. Carefully inspect all metal parts for cracks, nicks, dents, burrs or tool marks which might cause malfunction of the control unit.

B. Inspect all wiring for broken, charred or brittle insulation, broken wires, and other signs of damage.

C. Inspect receptacle of cable assembly (85, IPL figure 1) for broken or bent pins.

D. Inspect solenoid (20), pressure switch (91) and pressure transducer (93) for loose terminals or other signs of damage.

E. Inspect aneroid assemblies (41 and 63) and capsule assembly (43) for dents and cracks and other signs of damage.

F. Inspect all filters for contamination, corrosion, or damage.

G. Inspect all threads for burrs and signs of damage.

H. Inspect all valve seats for scoring, scratches and other damage.

I. Inspect all parts for obvious damage.

5. Repair

A. Repair of parts, other than removing burrs and chasing threads, is not recommended.

B. Replace gaskets (18, 24, 26, and 68A, IPL figure 1), preformed packings (13, 45, 76, 82, 84, 92, 99, 102, 104, 108, 121, 129, 132, 145 and 157) and diaphragms (119, 142, and 147).

C. Replace packing (138).

D. Replace all non-metallic parts.

E. Replace filter screens (97, 105, 106, 109, 137, and 139).

F. Replace all obviously defective parts.

G. Replace P/N 25310-01, On-Off Actuation Valve Assembly with P/N 802242-01, On-Off Actuation Valve Assembly (71 through 75).

NOTE: After replacing the actuation valve assembly, place a 1/4 in. diameter yellow lacquer dot on cover subassembly (23) above plate (2).

H. Inspect and rework, as required, pressure switch (91, IPL figure 1) manufactured by Neo-Dyne, Inc. ONLY. The namplate was cemented to the switch and inadvertantly sealed the vent port which is necessary for proper altitude operation of the switch.

The serial numbers of the affected P/N 22504-7 (Boeing P/N 10-60511-3) units are listed below. Units not listed are not affected.

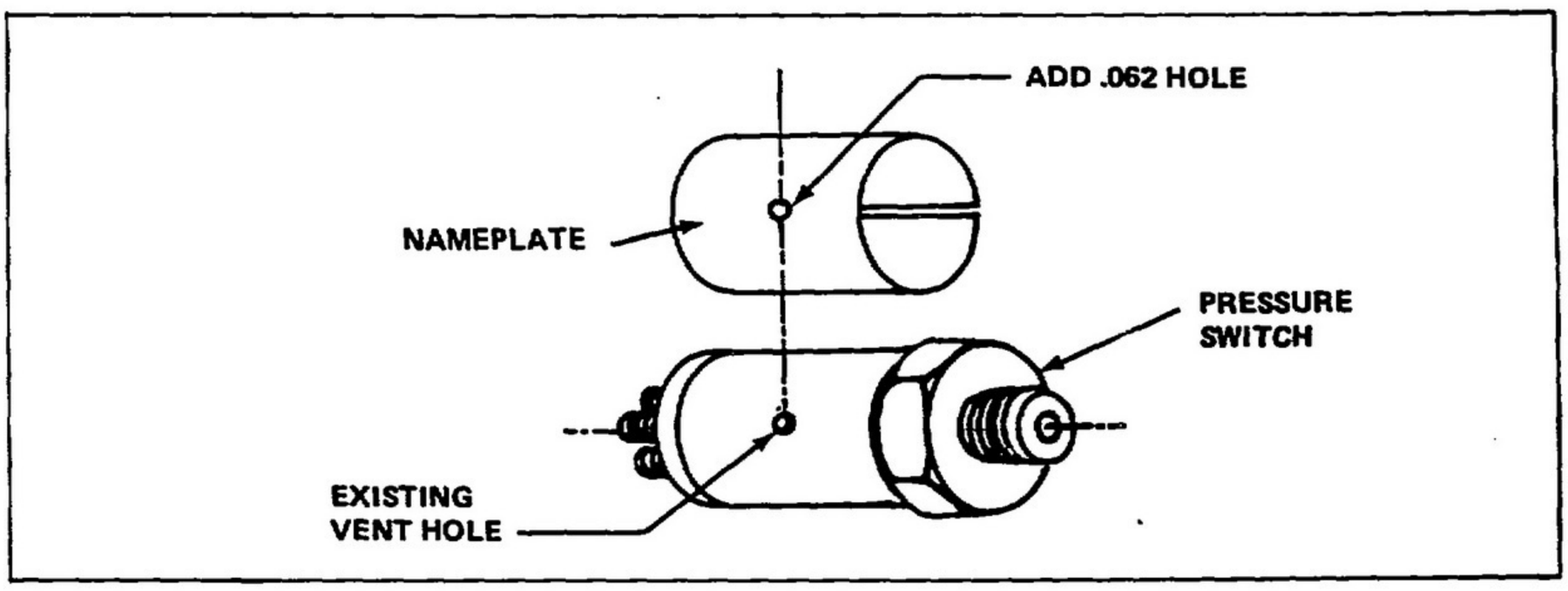
| Serial No. | Serial No. | Serial No. | Serial No. |
|---|---|---|---|
| 3115 | 3365 | 3397 | 3430 |
| 3144 | 3367 | 3398 | 3431 |
| 3150 | 3369 | 3399 | 3432 |
| 3151 | 3370 | 3401 | 3433 |
| 3152 | 3371 | 3402 | 3434 |
| 3156 | 3373 | 3403 | 3436 |
| 3159 | 3380 | 3404 | 3437 |
| 3330 | 3381 | 3405 | 3439 |
| 3331 | 3382 | 3406 | 3443 |
| 3334 | 3383 | 3407 | 3444 |
| 3337 | 3384 | 3408 | 3445 |
| 3341 | 3385 | 3409 | 3446 |
| 3346 | 3386 | 3410 | 3449 |
| 3352 | 3387 | 3411 | 3452 |
| 3353 | 3388 | 3412 | 3454 |
| 3356 | 3390 | 3414 | 3453 |
| 3357 | 3391 | 3415 | |
| 3359 | 3392 | 3416 | |
| 3360 | 3394 | 3423 | |
| 3361 | 3395 | 3426 | |
| 3362 | 3396 | 3428 | |

Procede with inspection/rework as follows:

(1) Using figure 401, carefully remove the nameplate from the pressure switch.

(2) Add (drill or punch) a .062 to .125 diameter hole to the nameplate.

(3) Replace the nameplate so that the vent port in the pressure switch body shows through the hole added to the nameplate.




Vent Hole Addition in Nameplate
Figure 401

6. Assembly (See IPL figure 1)

NOTE: Prior to reassembling a 22504 control unit, note the dash number and determine the parts applicable to that assembly (refer to "EFFECT CODE" column of the Illustrated Parts List). Disregard any instructions that do not apply to the particular assembly being overhauled.

NOTE: If Test Stand, part number 800801-00-T53-1, is used for tests required in this paragraph, close valve (RR, figure 503A), open valve (SS), and place selector valve (PP) in 22504 (down) position. Also, disregard instructions concerning valve (B).

| MATERIAL | DESCRIPTION | MANUFACTURER | REFER TO PARAGRAPH |
|---|---|---|---|
| Oxygen | MIL-O-27210, Type I | V07098 | 6.C.<br>8. |
| Leak Test Solution | Leak-Tek Formula 16-OX (MIL-L-25567) | V03530 | 6.C.(3)<br>6.Y.(6) |
| Loctite Sealant | Loctite, Grade B | V05972 | 6.I.(3) |
| Sealant | Glyptal, No. 1201 | V08800 | 6.AK.(9) |
| Adhesive | Hycar Latex, No. 1562X103 | V91427 | 9. |
| Oxygen Lubricant | Krytox 240 AC | V18873 | 6.B.(2) |

NOTE: Equivalent materials may be used except for oxygen lubricant.

*Refer to paragraph 12.A.(3) for Vendor's Code

List of Consummable Materials for Assembly and Testing
Table 501

A. Assemble items 33 through 39 as follows:

(1) Thread screw (34) into lever assembly (35) until the screw is flush with the bottom of the lever assembly.

(2) Thread setscrew (33) into lever assembly (35) until the setscrew is flush with the top of the lever assembly.

(3) Assemble lever assembly (35) to support (39) with pin (36), nut (37) and washer (38).

B. Set the items assembled in step A aside, and assemble items 9 through 18 to cover subassembly (19) as follows:

(1) Assemble gasket (18), plate (17) and lens (14) to cover subassembly (19) with screws (15) and nuts (16).

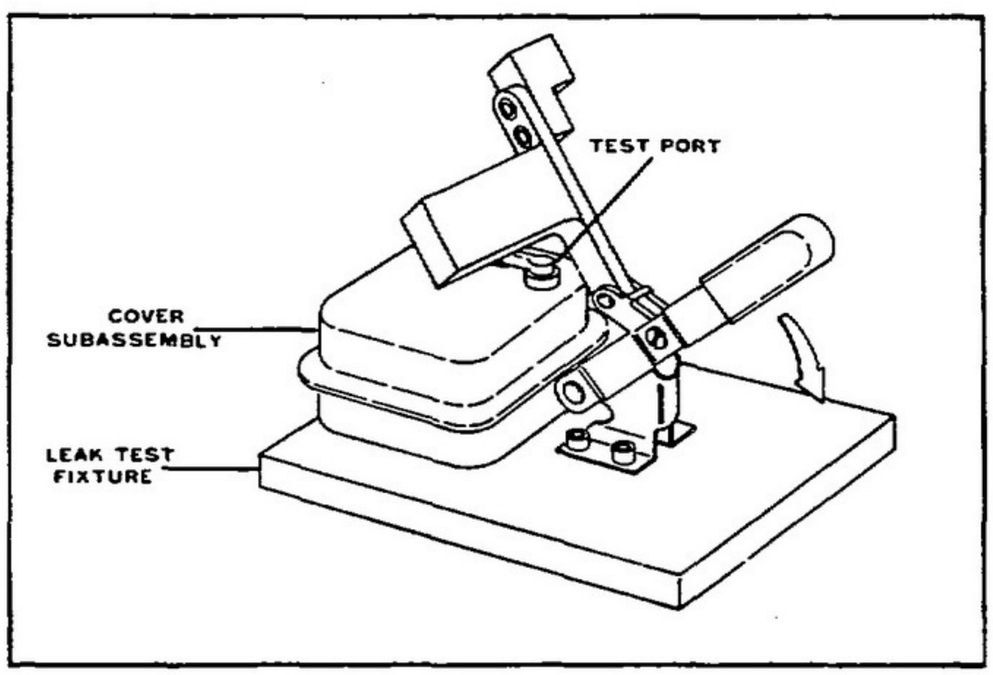
(2) Lubricate packing (17) sparingly with Krytox, place the packing on plunger (16) using stylus (3, figure 1002).

(3) Place plunger (12, IPL figure 1) with packing (13) installed through cover subassembly (19). Place washer (10) on end of plunger (12). Place spring (11) in place and thread button (9) onto plunger (12).

C. Leak test cover subassembly (19) in accordance with figure 501 and the following procedure.

CAUTION: OXYGEN IS USED AS THE TEST GAS WHEN PERFORMING THE TESTS OUTLINED IN TESTING PARA. 8. IF NITROGEN OR AIR IS USED, APPROPRIATE DENSITY CORRECTION FACTORS SHALL BE APPLIED TO THE FLOWMETER USED.

(1) Place unit under test in leak test fixture (5, figure 1002) and lock in place with handle.




Cover Subassembly Leak Test Setup
Figure 501

(2) Apply 15 psi to test port.

(3) Coat all rolled fittings and area of lens (14, IPL figure 1) with leak test solution. No leakage shall be evident; refer to figure 801 for remedial action.

(4) After completion of test, close off oxygen pressure, remove unit from test setup, blow dry with a stream of clean, dry, oil-free air and continue assembly.

D. Set the items assembled in step B, (1) through (3) aside, and assemble items 159 through 162 to housing assembly (163) as follows:

(1) Attach instruction plate (159) to housing assembly (163) with screws (160).

(2) Attach nameplate (161) to housing assembly (163) with screws (162).

E. Assemble items 53 through 58 to lever assembly (59) as follows:

(1) Insert plate (56) on shaft of lever assembly (59).

(2) Assemble indicator (53) to lever assembly (59) with screw (54) and washer (55).

(3) Place washers (57) and (58) on other end of lever assembly (59).

NOTE: Place flat side of washer (58) against washer (57).

F. Set items assembled in step E aside.

G. Assemble items 2 or 2A and 5 through 8 on cover subassembly (19) as follows:

(1) Assemble identification plate (2) to cover subassembly (19) if replacement is required.

(2) Secure leaf (8) to cover subassembly (19) with pin (5).

(3) Retain pin (5) with pin (6) and washers (7).

H. Install filter screens (105, 106 and 109) into housing assembly (163).

I. Assemble valve assembly (123 through 128) as follows:

(1) Place seat (126), washer (127) and guide (128) on stem (125).

(2) Place spring (124) in place on guide (128).

(3) Secure these items together by threading head (123) onto stem (125).

NOTE: Apply Loctite to threads of stem (125) prior to assembly. After applying loctite rest the item on the face of head (123) and allow to dry. Allow sufficient drying time to prevent loctite from running into bore of guide (128).

J. Coat packing (129) with distilled water and place in groove provided in housing assembly (163). Thread assembled valve assembly (123 through 128) (refer to step I) into housing assembly (163) finger tight.

K. Assemble valve assembly (150 through 156) as follows:

(1) Place seat assembly (156) and guide (155) on stem (154).

(2) Thread nut (153) onto stem (154).

(3) Place spring (152) and guide (151) in place and thread retainer (150) onto stem (154). Adjust retainer (150) for dimension specified in figure 502. After adjustment, tighten nut (153, IPL figure 1) against inside face of retainer (150).

(4) Position damper ring (148) between retainer (150) and guide (151).

L. Place valve (158) in housing assembly (163) with concave side facing out.

M. Place packing (157) in groove of seat assembly (156). Compress damper ring (148) and insert valve assembly (150 through 156) with damper ring in hand tool (11, figure 1002). (Major diameter of hand tool should be up.)

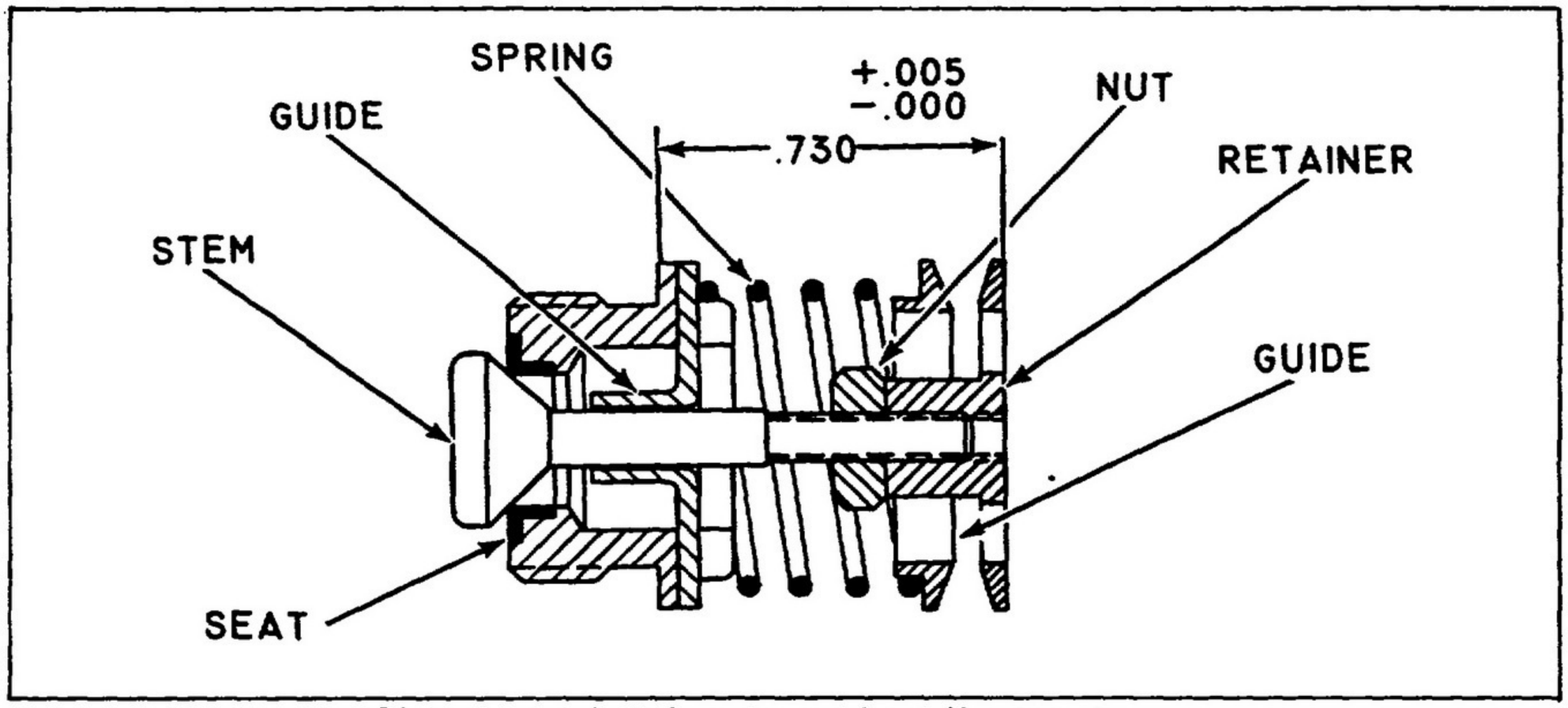
N. Place the hand tool, with valve assembly and damper ring inside, into housing assembly (163, IPL figure 1) and thread the valve assembly into the housing assembly using wrench (9, figure 1002). Remove hand tool (11) from housing assembly (163, IPL figure 1) after tightening valve assembly.

NOTE: Wrench (9, figure 1002) must line up with slots in seat assembly (156, IPL figure 1) when inserted in holes of retainer (150).

O. Assemble valve assembly (71 through 75) as follows:

(1) Place seat (75) and spring (73) on stem (74).

(2) Thread nuts (71 and 72) onto stem (74). Adjust and lock nuts (71 and 72) so that the overall length from the bottom of seat (75) to the top of nut (72) is 0.788 inches.




Flow Control Valve Assembly Adjustment
Figure 502

P. Install packing (76) on seat (75).

Q. Place assembled valve assembly (71 through 76) (refer to steps O and P) in housing assembly (163). Thread housing (69) into housing assembly (163) using wrench (10, figure 1002).

R. Thread a suitable test plug into housing assembly (163, IPL figure 1) in place of pressure transducer (93).

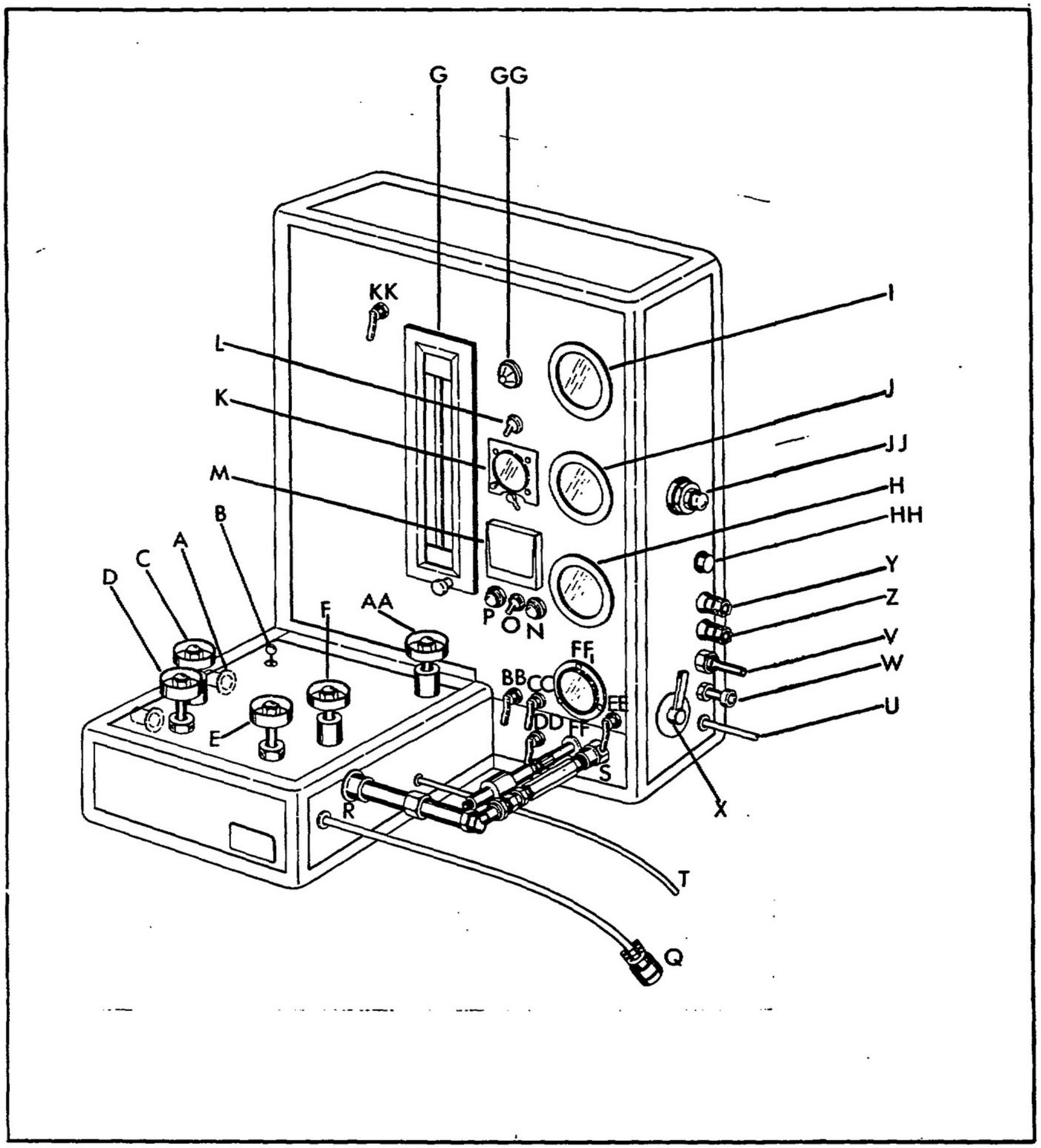
S. Leak test the first stage of the control unit in accordance with figure 503 and the following procedure.

(1) Close all test stand valves and switches and connect the unit inlet to connection (S), rotating the control unit so that first stage components are facing up. Connect a 2000 psi oxygen source to connection (W). Adjust regulator (X) for an indication of 200 psi on gauge (I).

(2) Torque first stage components per Table 601.

(3) Cap the first stage area with a rubber stopper equipped with a vent tube. Apply soap water solution across vent tube, no leakage shall be evident.

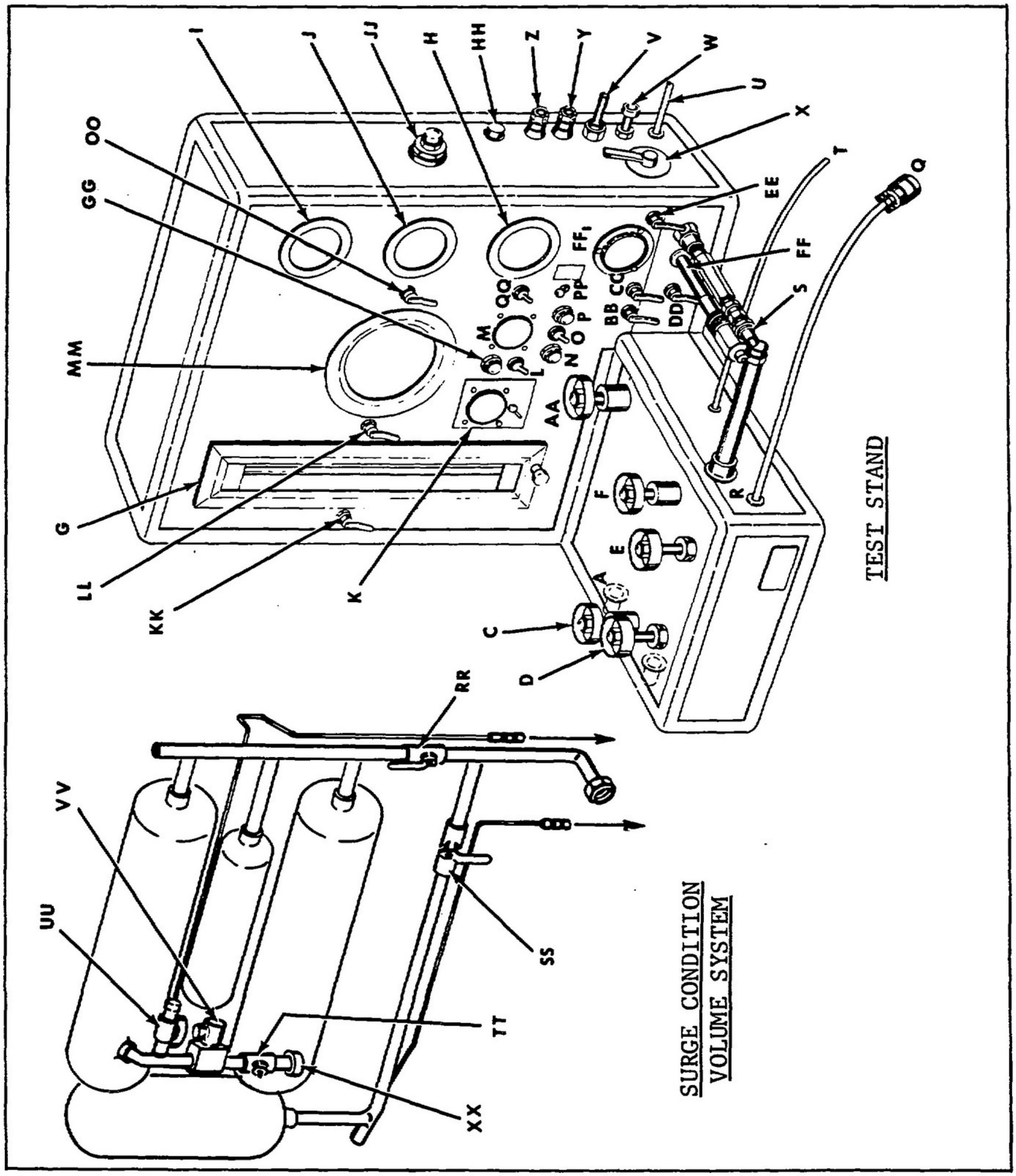
(4) After completion of test, adjust regulator (X) to bleed pressure from test setup, remove the unit from the test stand, blow dry with a stream of clean, dry, oil-free air and continue assembly.




Test Stand
Figure 503

Legend for Figure 503

A. Connection for external flowmeter
B. Valve (HIGH FLOW/LOW FLOW)
C. Valve ON (high) - OFF (low) flow selector
D. Valve (bleed)
E. Valve (vacuum)
F. Valve (flow control)
G. Flow Indicator
H. Outlet Pressure Gauge (0-160 psi) (Altitude Compensated)
I. Inlet Pressure Gauge (0-3000 psi)
J. Outlet Pressure Gauge (0-60 psi) (Altitude Compensated)
K. Altimeter
L Switch (vibrator)
M. Voltmeter (0-10 VDC)
N. Light (green)
O. Switch (energize solenoid)
P. Light (red)
Q. Electrical Connector (to test unit)
R. Connection (to outlet of test unit)
S. Connection (to inlet of test unit)
T. Vacuum Tubing (to test port of test unit)
U. Electrical Cable (to 110 VAC outlet)
V. Connection (to external vacuum source)
W. Connection (to external oxygen/air/nitrogen source)
X. Regulator (regulates oxygen/air/nitrogen to test stand)
Y. Connection (for positive lead of 28 VDC external power source)
Z. Connection (for negative lead of 28 VDC external power source)
AA. Valve (volume cylinder shut-off)
BB. Valve (back pressure)
CC. Valve ( first stage pressure)
DD. Valve (vent)
EE. Valve (gauge J shut-off)
FF. Connection (to test port of test unit)
$FF_1$. Gauge (0-160 psi - first stage vibrator)
GG. Light (indicator for vibrator)
HH. Fuse (115V vibrator circuit)
JJ. Regulator (first stage and back pressure)
KK. Valve (surge bleed)




Test Stand
Figure 503A

## Legend for Figure 503A

A. Connection for external flowmeter
B. Valve (HIGH FLOW/LOW FLOW) (located on underside of deck)
C. Valve ON (high) - OFF (low) flow selector
D. Valve (vent)
E. Valve (vacuum)
F. Valve (flow control)
G. Flow Indicator
H. Outlet Pressure Gauge (0-160 psi) (Altitude Compensated)
I. Inlet Pressure Gauge (0-3000 psi)
J. Outlet Pressure Gauge (0-60 psi) (Altitude Compensated)
K. Altimeter
L. Switch (vibrator)
M. Oxygen Pressure Indicator
N. Light (green)
O. Switch (energize solenoid)
P. Light (red)
Q. Electrical Connector (to unit under test)
R. Connection (to outlet of test unit)
S. Connection (to inlet of test unit)
T. Vacuum Tubing (to test port of test unit)
U. Electrical Cable (to 110 VAC outlet)
V. Connection (to external vacuum source)
W. Connection (to external oxygen/air/nitrogen source)
X. Regulator (regulates oxygen/air/nitrogen to test stand)
Y. Connection (for positive lead of 28 VDC external power source)
Z. Connection (for negative lead of 28 VDC external power source)
AA. Valve (volume cylinder shut-off)
BB. Valve (back pressure)
CC. Valve (first stage pressure)
DD. Valve (vent)
EE. Valve (gauge J shut-off)
FF. Connection (to test port of test unit)
$FF_1$. Gauge (0-160 psi - first stage back pressure)
GG. Light (indicator for vibrator)
HH. Fuse (115V vibrator circuit)
JJ. Regulator (first stage relief and back pressure)
KK. Valve (25 LPM surge vent)
LL. Manometer shut-off and calibration valve
MM. 0-100 psia gauge
OO. 0-100 psi gauge (shut-off valve)
PP. Surge System selector valve
QQ. Surge relay reset
RR. 800801 Surge System shut off valve
SS. 22504-22505 Surge System shut off valve
TT. 985 LPM controllable orifice
UU. Surge pressure switch
VV. Surge solenoid valve
WW. Surge relay
XX. 985 LPM surge outlet

T. Assemble screw assembly (80 and 81, IPL figure 1) by inserting insert (80) into the hole provided in screw (81). Place packing (82) in groove of screw (81) using stylus (3, figure 1002).

U. Thread screw assembly (80 and 81, IPL figure 1) into housing assembly (163) until screw assembly is flush with housing assembly (163).

V. Place packing (121) in groove of poppet (120). Position poppet (120) on head of stem head (123). Place diaphragm assembly (119) and ring (118) in housing assembly (163). Thread retainer (117) into the housing assembly using wrench (4, figure 1002) and torque per Table 601.

W. Thread screw (110, IPL figure 1) into cap (111). Top of screw (110) must be flush with outside surface of cap (111) at this point in assembly. Clean off any metal particles which may have been generated by the assembly.

X. Place ring (116), spring (115) and ring (114) in housing assembly (163). Thread cap (111) into the housing assembly using wrench (4, figure 1002).

Y. Adjust the first stage pressure and leak test actuation valve assembly (71 through 75, IPL figure 1) in accordance with figure 503 and the following procedure.

(1) Connect the control unit to connection (S) and connection (R) of the test stand. Connect connection (FF) to test port of unit under test. Close all other test stand valves and switches. Adjust regulator (X) for an indication of 2000 psi on gauge (I).

(2) Adjust adjustment cap (111, IPL figure 1) for an indication of 90 psi on gauge ($FF_1$).

NOTE: Use wrench (4, figure 1002) to adjust the adjustment cap (111, IPL figure 1).

(3) Pour sufficient distilled water into housing assembly (163) port to cover actuation valve assembly (71 through 75). No leakage shall be evident.

NOTE: Drain excess water, blow dry with a stream of clean, dry, oil-free air.

(4) After adjustment, exercise flow control valve assembly (150 through 156) several times. Check gauge ($FF_1$) for an indication of 90 psi. First stage pressure shall remain at 90 psi after exercising the flow control valve assembly.

NOTE: If first stage pressure cannot be set at 90 psi, refer to figure 801 for remedial action.

(5) Open valve (CC) and adjust regulator (JJ) for an indication of 140 psi on gauge ($FF_1$).

(6) Apply a leak test solution to adjustment cap (111, IPL figure 1) holes and adjust screw (110) for bubble leak at adjustment cap (111) holes.

(7) Place valve (DD) on long enough to reduce pressure indication on gauge ($FF_1$) to 120 psi and readjust regulator (JJ). No leakage shall be evident at adjustment cap (111).

NOTE: Recheck first stage pressure for 90 psi indication on gauge ($FF_1$). Repeat steps (2) through (5) until proper pressures are attained.

(8) After completion of test, close valve (CC), place valve (DD) on long enough to bleed gauge ($FF_1$) and continue assembly.

Z. Place washer (42) on aneroid assembly (41). Thread the aneroid assembly into housing assembly (163) until the aneroid assembly bottoms securely on washer (42).

AA. Position spring frame (66) and the same number of shims (68A) as were removed on housing assembly (163) aligning mounting holes of spring frame with holes in housing assembly. Thread alignment tool (12, figure 1002) through the large diameter hole in spring frame (66, IPL figure 1) and into the hole provided for aneroid assembly (63) in housing assembly (163). Thread the alignment tool into the hole until the tool bottoms out on the surface of housing assembly (163).

AB. With alignment tool in place, adjust spring frame (66) until mounting holes are aligned with holes in housing assembly. Secure the spring frame to the housing assembly with screws (67) and washers (68). Unthread the alignment tool from the housing assembly.

AC. Carefully thread aneroid assembly (63) into housing assembly (163) until it bottoms out finger tight. Mount the items assembled in step E to the housing assembly with screws (51) and washers (52).

AD. Position leaf spring (62) between lever assembly (59) and aneroid assembly (63). Position the leaf spring so that the ends of the leaf spring line up with the slots of spring frame.

AE. Thread one lock nut (61) onto end of tie bolt (60). Slide tie bolt (60) through holes in spring frame (66) and thread on other lock nut (61). Turn in lock nuts until ends of leaf spring (62) are in slots of spring frame (66).

AF. Turn in lock nuts (61) until leaf spring (62) is in the "ON" position illustrated in figure 504. Adjust the lock nuts so that the leaf spring holds with a 1.2 pound load applied to lever assembly (59, IPL figure 1) and snaps to the "OFF" position when a 1.25 load is applied as illustrated in figure 504.

AG. Thread seat assembly (49, IPL figure 1) into housing assembly (163). Place spring (48) and stem (47) into port of housing assembly. Thread nut (44) onto capsule assembly (43). Place packing (45) in groove of capsule assembly (43) using stylus (3, figure 1002). Using a sharp scriber, draw a scratch across seating area of seat assembly (49) prior to installation.

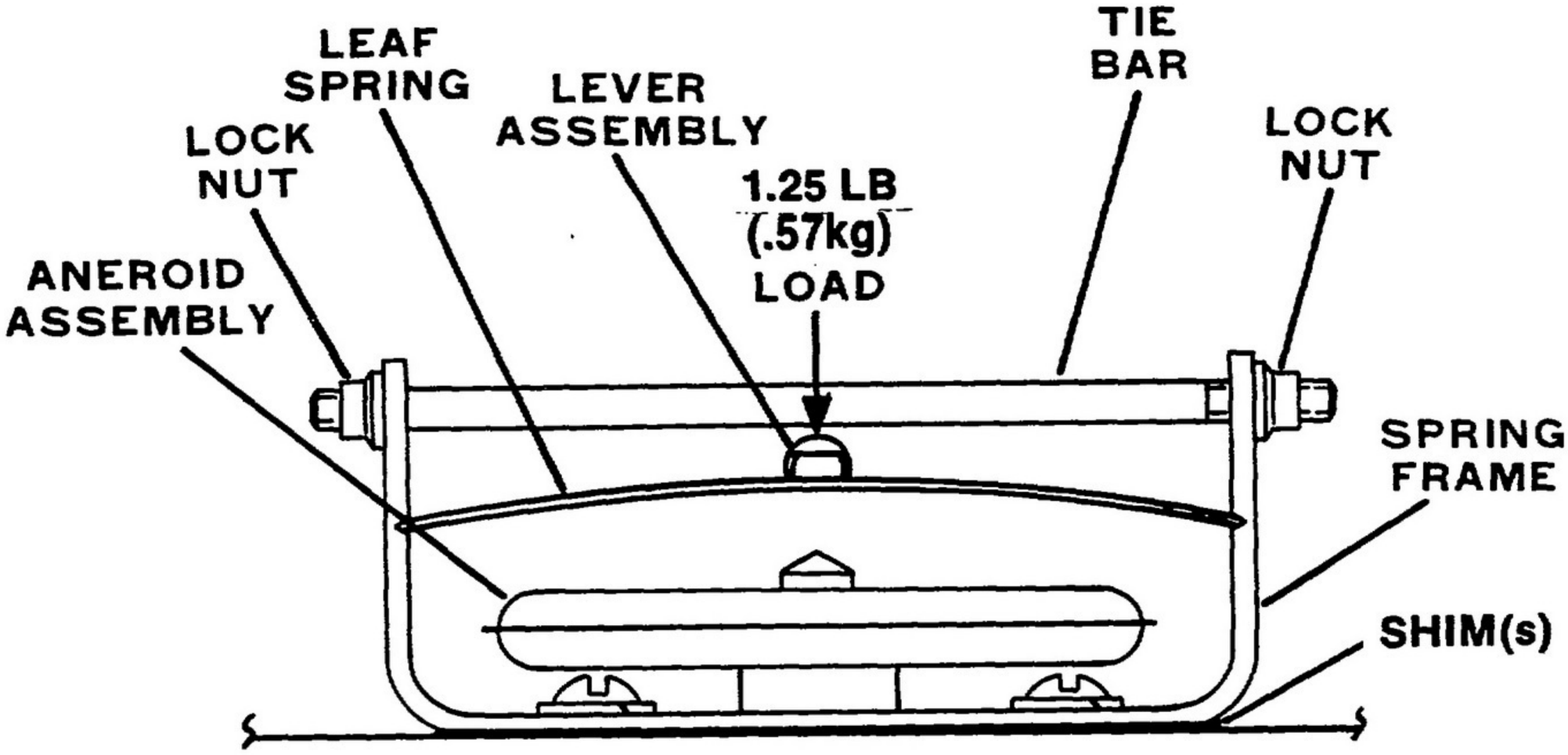
AH. Insert pin (46, IPL figure 1) into capsule assembly (43); then thread the capsule assembly into housing assembly (163) until packing (45) seats in groove provided in housing assembly (163).

AI. Install suitable test plugs in the pressure switch and actuation valve ports.

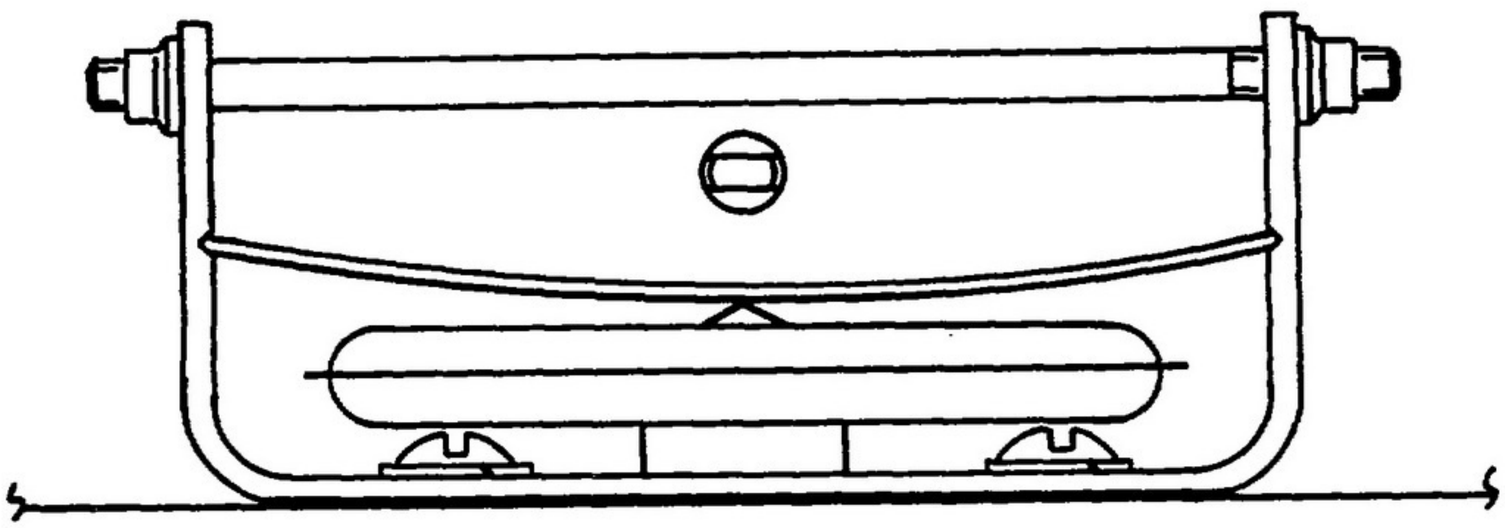
AJ. Install insert (65) and setscrew (64) into housing assembly (163), do not tighten.

AK. Adjust the partially assembled control unit in accordance with figure 503 and the following procedure.

(1) Connect the control unit to the test stand at connection (S) and connection (R). Close all test stand valves and switches.




ON POSITION



OFF POSITION

Leaf Spring Adjustment
Figure 504

(2) Connect a vacuum source to connection (V) and plug test stand into 110 VAC outlet at connection (U).

(3) Place switch (L) "ON". Light (GG) shall illuminate.

(4) With leaf spring (62, IPL figure 1) in "OFF" position, position test cover (6, figure 1002) on control unit and attach vacuum tubing (T) to test port of test cover.

NOTE: Do not apply external pressurized oxygen to unit under test at this time.

(5) Adjust valves (D) and (E) until automatic actuation occurs (leaf spring can be heard snapping into "ON" position). Check altimeter (K) for altitude of actuation. Actuation must occur between 13,000 and 13,300 feet for 22504-7, -9 and -13 and 13,800 and 14,100 feet for 22504-11 as indicated on altimeter (K). Adjust position of aneroid assembly (63,IPL figure 1) by trial and error until proper altitude actuation occurs.

(6) Tighten aneroid locking setscrew (64).

NOTE: Loosen setscrew (64) for each new position of the aneroid assembly (63), retighten setscrew prior to rechecking for altitude actuation.

(7) Adjust valves (D) and (E) for ground level. Remove test cover and manually place leaf spring in "OFF" posision.

(8) Adjust locknuts (61) until automatic actuation (leaf spring in "ON" position) occurs at 13,900 to 14,100 feet for 22504-7, -9 and -13 and 14,500 to 14,700 for 22504-11. (Use test cover and valves (D) and (E) to determine altitude of actuation). Adjust locknuts (61) by trial and error until proper automatic actuation occurs.

(9) Adjust valves (D) and (E) for ground level and place switch (L) in "OFF" position. Remove test cover and manually place leaf spring in "OFF" position. Apply Glyptal, or an equivalent, to locknuts (61) after final adjustment.

(10) Remove unit from test stand and continue assembly.

AL. Place diaphragm (147) and washer (146) into housing assembly (163). Place packing (145) in groove of body (144). Insert body (144) in housing assembly (163) and depress to seat firmly on washer (146).

AM. Assemble orifice and diaphragm assembly (136 through 143) as follows:

(1) Place diaphragm (142) and ring (141) on orifice assembly (143) and secure in place with nut (140).

(2) Place screen (139), 1 to 3 strands of 2-1/4" long packing (138) and screen (137) into orifice assembly (143). Secure these items in the orifice assembly with setscrew (136).

NOTE: Prior to installing assembled orifice and diaphragm assembly (136 through 143) into body (144), adjust packing (138) for restriction to oxygen flow. Connect assembled orifice and diaphragm assembly to an external oxygen supply, apply 90 psi and adjust setscrew (136) until 0.16 lpm flow is attained. Stake setscrew (136) in two places.

AN. Place assembled orifice and diaphragm assembly (136 through 143) in body (144).

AO. Place spring (134) and disc (133) in cap (131). Place packing (132) in groove of cap (131).

AP. Thread cap (131) into housing assembly (163) firmly against orifice assembly (143) using wrench (7, figure 1002). Thread nut (130, IPL figure 1) onto cap (131) using wrench (8, figure 1002) and torque per Table 601.

NOTE: Hold cap (131, IPL figure 1) while tightening nut (130). Tighten nut (130) firmly against housing assembly (163).

AQ. Mount the items assembled in step A to housing assembly (163) as follows:

(1) Place spring (40) over setscrew (33).

(2) Mount support (39) to housing assembly (163) with screws (30) and washers (31 and 32).

NOTE: Before tightening screws (30), align center of screw (34) with tip of capsule assembly (43), and center of rivet of lever assembly (35), with tip of aneroid assembly (41).

(3) Press lever assembly downward at aneroid assembly and tighten nut (see figure 505).

(4) Slightly loosen nut, until lever assembly tilts toward capsule assembly.

AR. Adjust and test the partially assembled control unit in accordance with figure 503 and the following procedure.

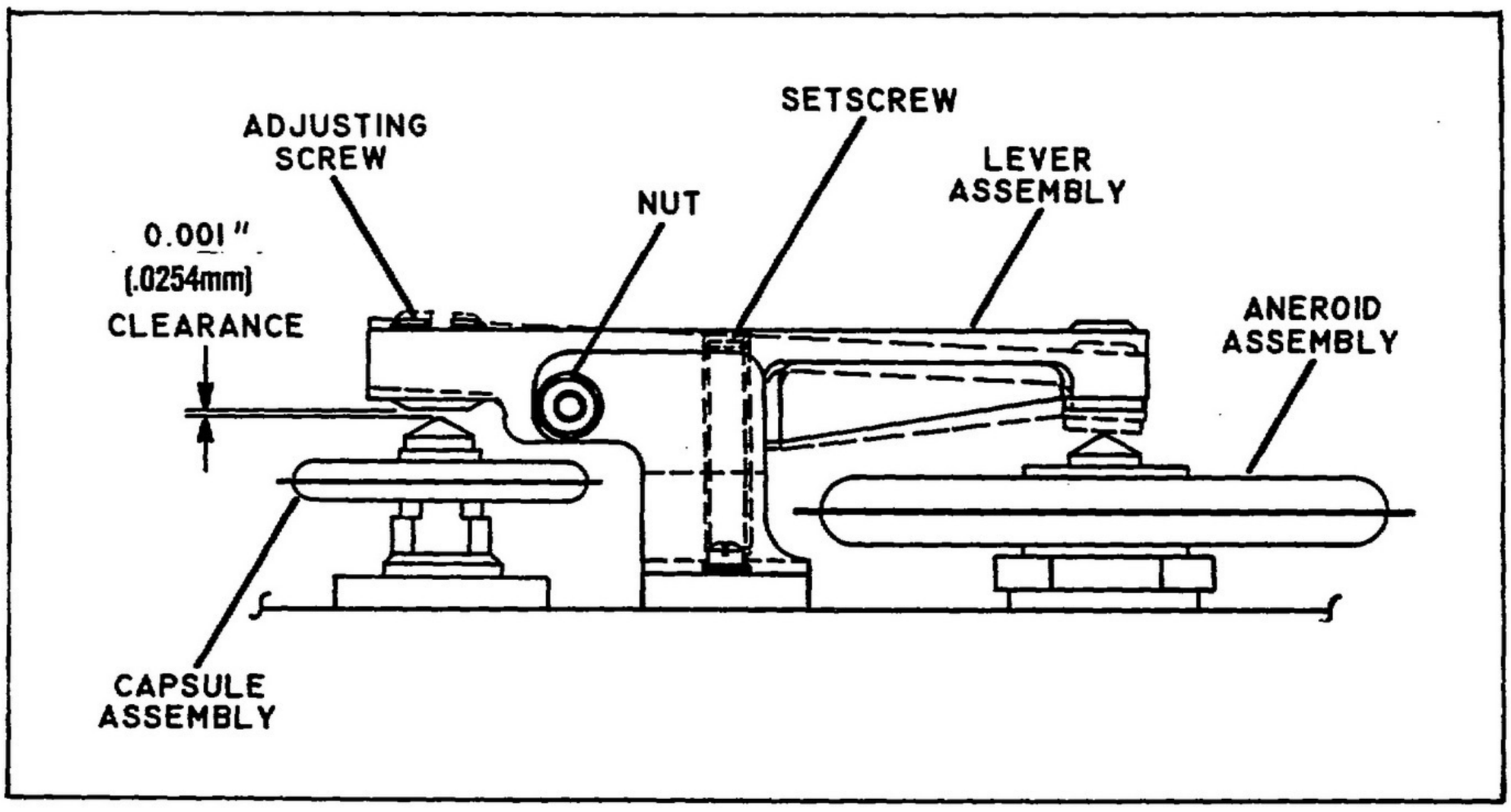
(1) Connect the control unit to the test stand at connection (R), connection (S), and connection (FF).

(2) Install a test plug in the relief valve port.

(3) Place valve (B) in "HIGH FLOW" position; place valve (C) in "ON" position; close all other valves; turn all switches off.

(4) Connect a 2000 psi oxygen source to connection (W); a vacuum source to connection (V); and plug connector (U) into a 110 volt AC outlet.

(5) Turn vibrator switch (L) on. Light (GG) shall illuminate.




Lever Assembly Adjustment
Figure 505

(6) Slowly turn on external oxygen supply and adjust regulator (X) for 600 psig indication on gauge (I).

(7) Manually snap leaf spring (62, IPL figure 1) to "ON" position. The control unit shall surge as indicated on gauge (H). Open valve (F), if pressure gauge (H) remains near first stage pressure, leave valve (F) open slightly and adjust screw (81) (clockwise) until pressure indication drops on gauge (H). Keep adjusting screw (81) until only a slight flow is heard at outlet of stand.

(8) Adjust regulator (X) for 1000 psi indication on gauge (I).

(9) Close valve (F), place valve (B) in "HIGH FLOW" position and place valve (C) in "OFF" position. Attach a flowmeter to connection (A). Open valve (F) and adjust pilot flow adjusting screw assembly (80 and 81) for an indication of 1.3 lpm on flowmeter. Close valve (F) and remove flowmeter from connection (A).

(10) Place valve (B) in "LOW FLOW" position, place valve (C) in "OFF" position, and place switch (EE) on. Loosen nut (44) and adjust capsule assembly (43) clockwise for 3.5 to 4.5 psi indication on gauge (J), while adjusting valve (F) for an indication of 10 lpm on flow indicator (G). Lock capsule assembly (43) with nut (44). Recheck gauge (J) for 3.5 to 4.5 psi after locking the capsule assembly. Readjust if required. Close switch (EE).

(11) Turn adjusting screw (clockwise) until a clearance of 0.001 inch is attained between adjusting screw and capsule assembly (see figure 505).

(12) Manually reset leaf spring (62, IPL figure 1). Place valve (B) in "HIGH FLOW" position, place valve (C) in "ON" position. Close valve (F). Attach vacuum tubing (T) to test port of test cover (6, figure 1002) and place the test cover on the control unit. Close valve (D) and open valve (E) until control unit surges. The control unit shall surge between 13,250 and 14,500 feet for 22504-7, 22504-9 and 22504-13 and between 14,000 and 15,000 feet for 22504-11, as indicated on altimeter (K).

(13) Close valve (E), open valve (D) and bleed the system by opening valve (F). Manually reset leaf spring (62, IPL figure 1). Open valves (KK and AA), close valve (D) and adjust valve (E). While adjusting valve (E), watch gauge (H). Using a stop watch, check the time elapsed from control unit turn on (surge) until the surge reaches 50 psi. Time elapsed shall be a maximum of 4 seconds.

NOTE: If time elapsed is more than 4 seconds, or a minimum of 50 psi is not attained, check for 0.001 clearance (figure 505) or replace packing (138, IPL figure 1) and adjust setscrew (136). After any adjustment of setscrew (136) repeat step (11) to insure elapsed time of 4 seconds maximum.

(14) Close valve (KK) and bleed the system by opening valve (F). Close valve (F) and adjust valve (E) for 20,000 feet indication on altimeter (K), open valve (EE) and check indicated pressure on gauge (J). Pressure shall be between 10.8 and 13.8 psig for 22504-7, -9, -11 and 13.6 and 16.7 psig for 22504-13 with a low outlet flow.

NOTE: If pressure is low, back-off on setscrew and turn-in adjusting screw (while maintaining the 0.001 clearance between adjusting screw and capsule assembly) until pressure is between 10.8 and 13.8 psig for 22504-7, -9, -11 and 13.6 and 16.7 psig for 22504-13 as indicated on gauge (J). Reverse the adjustment procedure for decreasing the pressure (see figure 505).

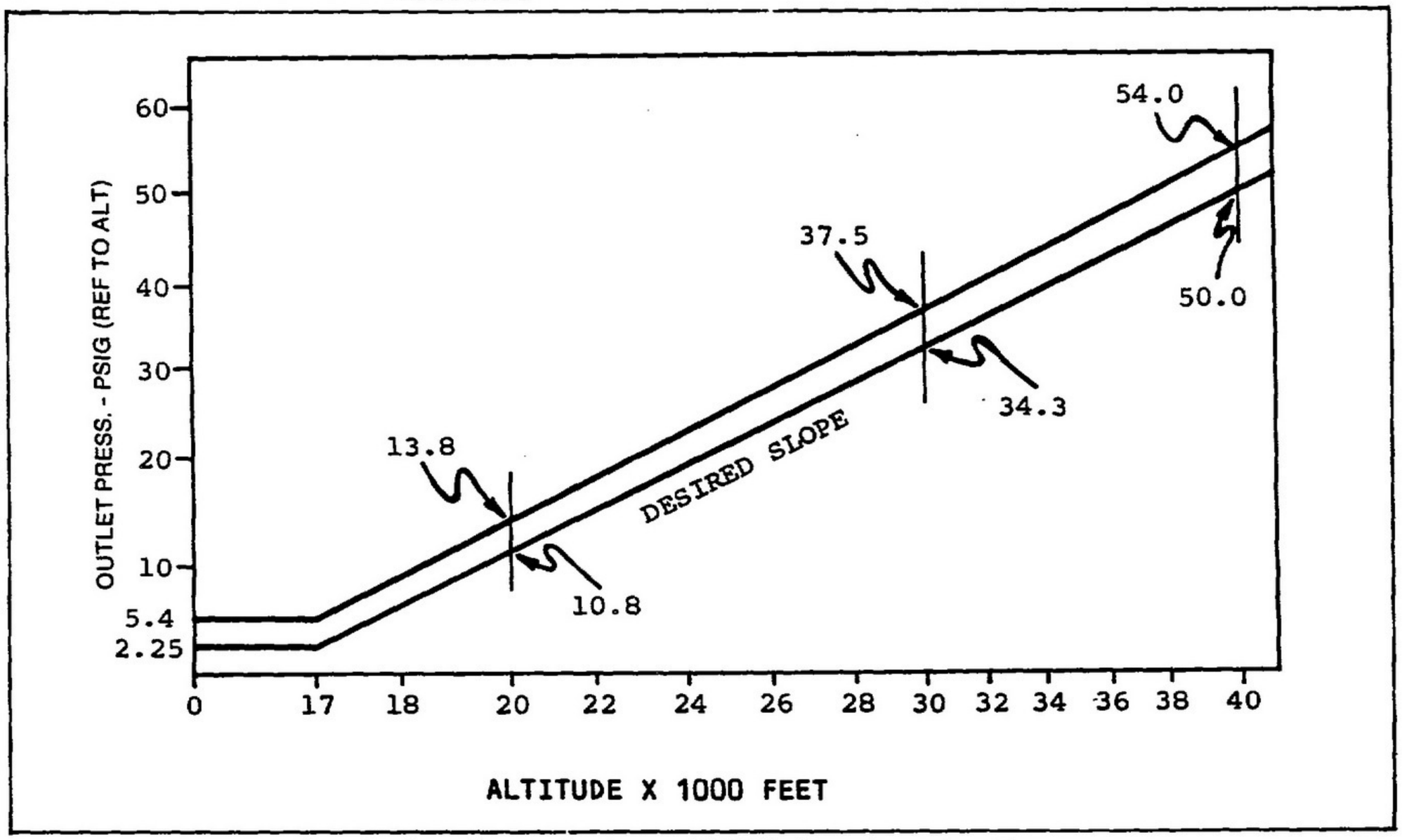
(15) Place valve (C) in "ON" position and place valve (B) in "HIGH FLOW" position. Adjust valve (E) for 20,000 feet on altimeter (K). Open valve (F) until gauge (H) indicates pressure below 60 psi, open valve (EE) to actuate gauge (J). Place valve (C) in "OFF" position and place valve (B) in "LOW FLOW" position. Adjust valve (F) for an indication of 10 lpm on flow indicator (G). Read pressure indication on gauge (J) and record on graph paper prepared in accordance with figure 506 for part numbers 22504-7, -9 and -11 and figure 506A for part number 22504-13.

(16) Close valve (F) and adjust valve (E) for 30,000 feet on altimeter (K). Adjust valve (F) for an indication of 10 lpm on flow indicator (G). Read pressure indication on gauge (J) and record on graph paper.

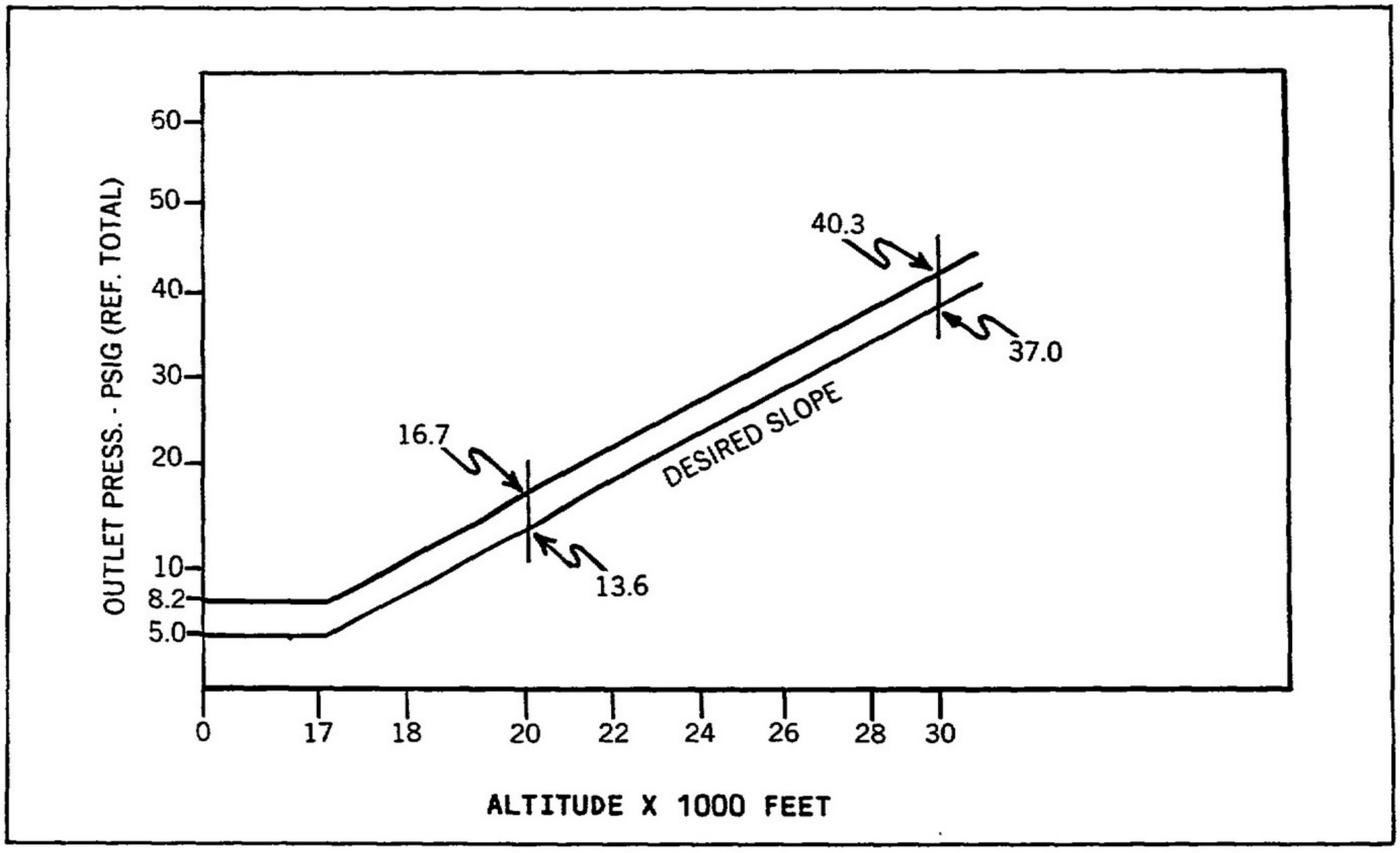
(17) For 22504-7, -9 and -11 ONLY close valve (F) and adjust valve (E) for 40,000 feet on altimeter (K). Adjust valve (F) for an indication of 10 lpm on flow indicator (G). Read pressure indication on gauge (J) and record on graph paper. Close valve (F) and open valve (D) until altimeter (K) indicates ground level. Close valve (F) and bleed system.

(18) Draw a line between the pressure indications recorded in steps (15), (16) and (17). This line shall be parallel with the desired slope.

NOTE: If the angle of the line drawn is greater than the angle of the desired slope, loosen screws (30, IPL figure 1) and adjust support (39) in the direction of aneroid assembly (41) and tighten screws (30). If the angle is less than the angle of the desired slope, adjust support away from the aneroid assembly (41). Repeat steps (15) through (17) until desired slope is achieved. After desired slope is achieved mark support (39) position on housing assembly (163) in order to reposition the support if moved for any reasons.




Graph for Part Numbers 22504-7, -9 and -11
Figure 506




Graph for Part Number 22504-13
Figure 506A

(19) For 22504-7, -9 and -11 ONLY close valve (F). Place valve (C) in "OFF" position and place valve (B) in "LOW FLOW" position. Adjust valve (E) for 40,000 feet on altimeter (K). Adjust valve (F) for 10 lpm on flow indicator (G). Gauge (J) shall indicate below 54.0 psi.

(20) For 22504-7, -9 and -11 ONLY place valve (C) in "ON" position and place valve (B) in "HIGH FLOW" position. Adjust valve (F) for an indication of 1000 lpm on flow indicator (G). Gauge (J) shall indicate above 50 psi.

(21) Close valve (E), open valve (D) until 20,000 feet is indicated on altimeter (K).

(22) Place valve (C) in "ON" position and place valve (B) in "HIGH FLOW" position. Adjust valve (F) for an indication of 430 lpm on flow indicator (G). Gauge (J) shall indicate above 10.8 psi for 22504-7, -9 and -11 and above 13.6 psi for 22504-13. Close valve (E), open valve (D) and return to ground level.

(23) Close valves (F), (AA) and (EE). Open valve (BB). Adjust regulator (JJ) for an indication of 140 psi on gauge (H). With a 2000 psi indication on gauge (I), hold in this condition for two minutes. After two minutes, close valve (BB), slowly open valve (F), open valve (AA) until gauge (H) indicates zero.

(24) Repeat steps (15) through (22). If any adjustment of screws (33 and 34) is required, repeat step (23), then steps (15) through (22).

NOTE: Steps (15) through (22) must be repeated until unit functions properly after accomplishing step (23).

(25) Turn off all valves and switches, remove the unit from the test stand, remove all test plugs and fittings and complete assembly.

AS. Place packing (92) on pressure switch (91) and thread the pressure switch into housing assembly (163).

AT. Thread detent assembly (50) into housing assembly (163) maintaining a clearance of 0.02 to 0.03 inches between the top of detent assembly (50), which is above flush, and housing assembly (163).

AU. Mount cover subassembly (19) and gaskets (24 and 26) to housing assembly (163) using screws (3) and washers (4).

AV. Mount solenoid (20) to housing assembly (163) using screws (21) and washers (22).

NOTE: Place tubing (25) over leads of solenoid (20) after mounting to housing assembly.

AW. Place ring (100), packing (99), sleeve (98) and screen (97) on inlet of pressure transducer (93). Secure the pressure transducer to housing assembly (163) with screws (94) and washers (95, 96 and 96A).

NOTE: Use pressure transducer, serial number 400 and subsequent only, in the control unit.

AX. Mount cable assembly (85) to housing assembly (163) with screws (86) and washers (87).

AY. Place disc (90) in position on pressure switch (91), then position washers (91A) on terminals of pressure switch (91).

AZ. Perform a transducer voltage check as follows:

(1) Connect transducer to a regulated oxygen supply.

CAUTION: TURN POWER SUPPLY TO "OFF" POSITION PRIOR TO CONNECTING OR DISCONNECTING THE TRANSDUCER UNDER TEST.

(2) Connect transducer (terminals 1 and 3) to a regulated 28 volt DC supply (positive lead to terminal 3, negative lead to terminal 1).

NOTE: Use an instrument with an input impedance which is not less than 50,000 ohms and whose accuracy is ± 0.05% or better.

(3) Measure the output voltage (terminals 1 and 2) at the various inlet pressures as shown in Table 502.

| INLET PRESSURE PSI | D.C. VOLTAGE |
|---|---|
| 500 | 1.036 to 1.204 |
| 1000 | 2.156 to 2.324 |
| 1500 | 3.276 to 3.444 |
| 2000 | 4.396 to 4.564 |

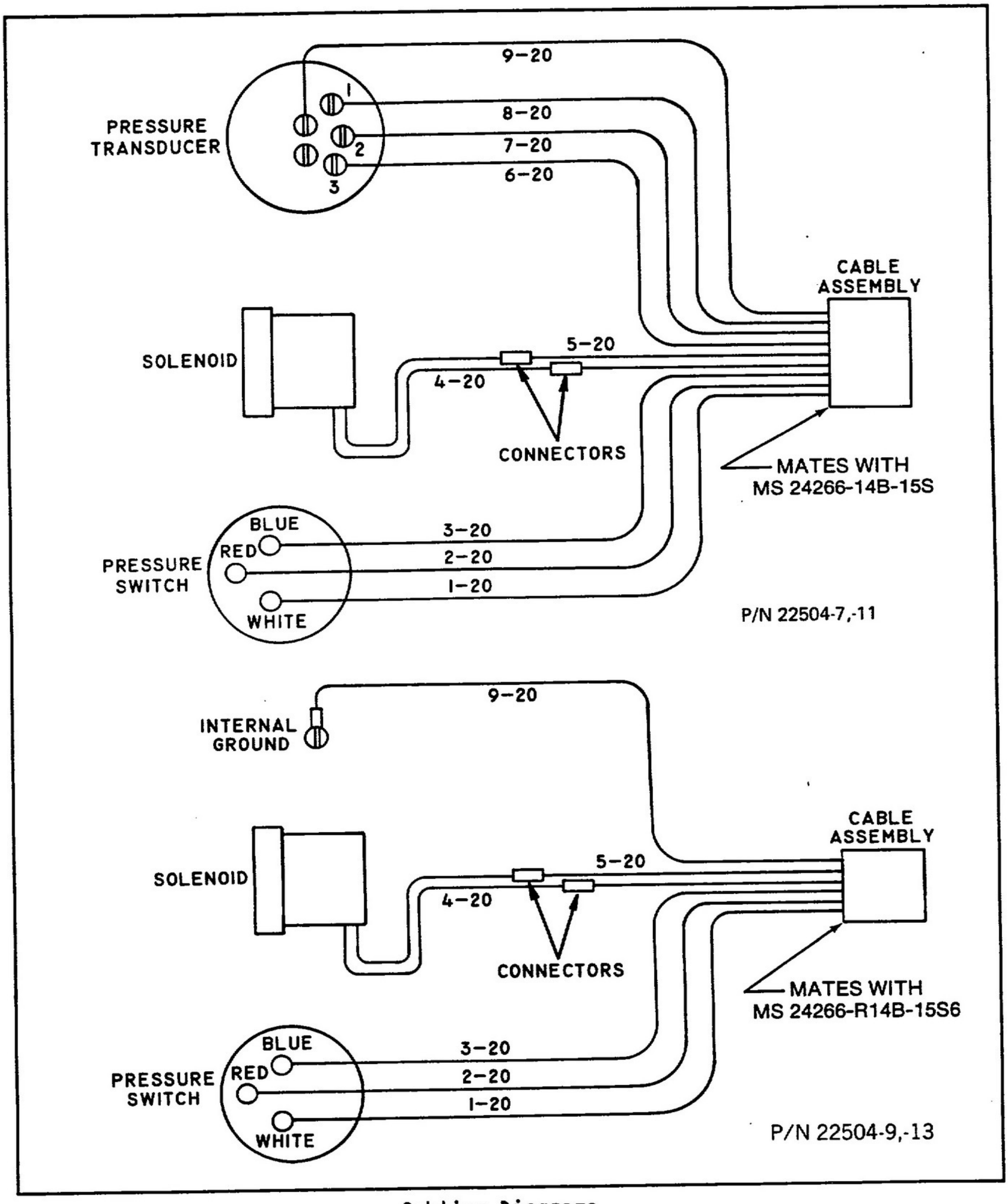
Transducer Voltage Test
Table 502

BA. Attach leads of cable assembly (85) to pressure transducer (93), pressure switch (91) and leads of solenoid (20) in accordance with figure 507.

NOTE: Use parallel connectors (23, IPL figure 1) to secure leads of solenoid (20) to appropriate leads of cable assembly (85).

BB. Secure mounting plate (27) to housing assembly (163) with screws (28) and washers (29).

BC. Place packing (84) on plug (83) using stylus (3, figure 1002).




Cabling Diagrams
Figure 507

BD. Place packing (102, IPL figure 1) on relief valve (101); place packing (104) on union (103); place packing (108) on fitting (107).

BE. Thread plug (83), relief valve (101), union (103) and fitting (107) into housing assembly (163).

BF. Place insert (113) and setscrew (112) in housing assembly (163) to lock cap (111) in place.

NOTE: Subsequent to completion of assembly and testing, place a 1/4 in. blue lacquer dot on cover subassembly (19) above plate (2).

7. Fits and Clearances

A. Table 601 presents the torque values necessary to assemble the unit.

| UNIT | TORQUE (Newton meters) |
|---|---|
| Retainer (117, IPL figure 1) | 135 pound-inches (15, 3) |
| 1st stage components (123 through 128) | 225 pound-inches (25, 4) |
| Nut (130) | 70 pound-inches (7, 9) |

Assembly Torque Values
Table 601

8. Testing

CAUTION: OXYGEN IS USED AS THE TEST GAS WHEN PERFORMING THE TESTS OUTLINED IN THIS PARAGRAPH. IF NITROGEN OR AIR IS USED, APPROPRIATE DENSITY CORRECTION FACTORS SHALL BE APPLIED TO THE FLOW METER USED.

NOTE: If Test Stand, part number 800801-00-T53-1, is used for performing testing procedures, close valve (RR, figure 603A), open valve (SS), and place selector valve (PP) in 22504 (down) position. Also, disregard instructions concerning valve (B).

A. Perform a dielectric test of the assembled control unit in accordance with figure 701 and the following procedure:

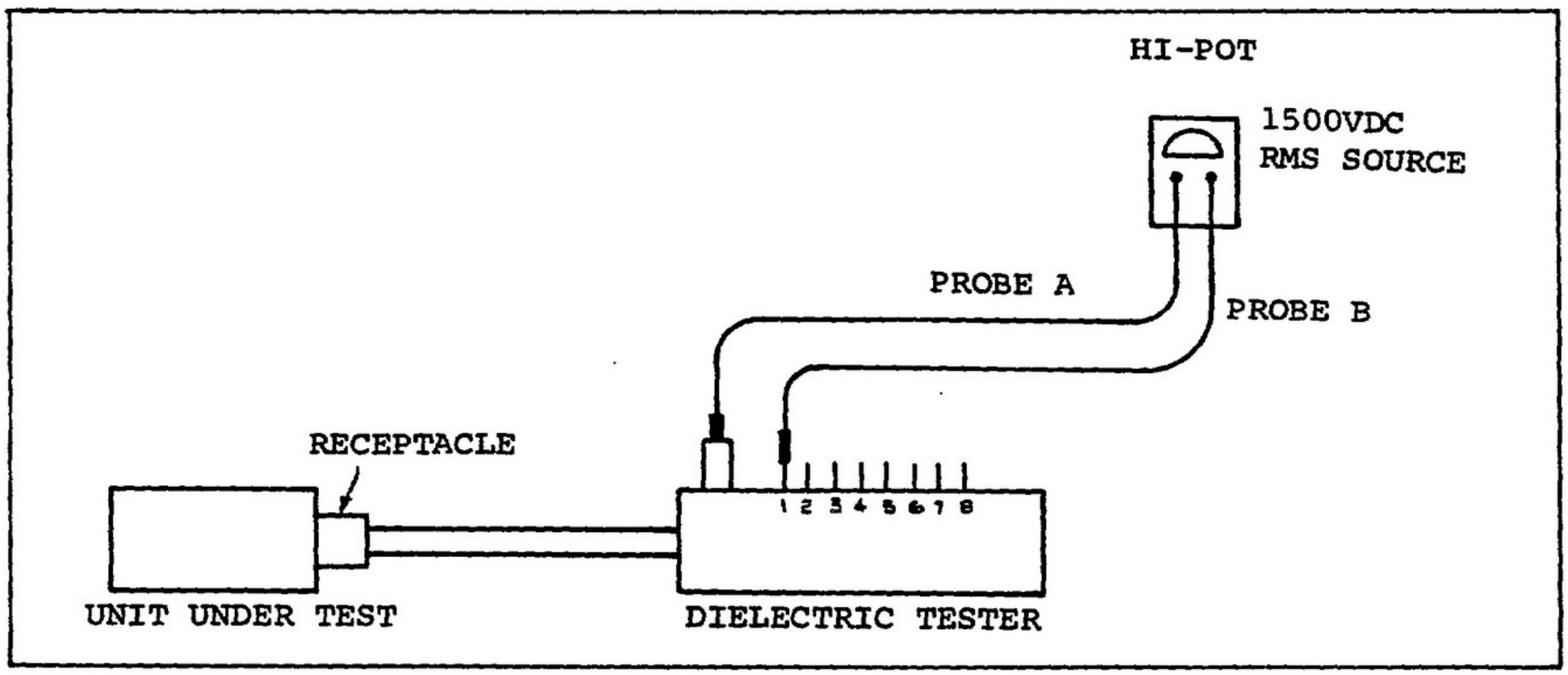
(1) Insert plug of dielectric tester into receptacle of cable assembly (85, IPL figure 1).

(2) Connect probe A to ground terminal of tester.

(3) Attach probe B of tester to terminal 1 for a period of two seconds. No breakdown shall be evident.

(4) Repeat step (3) with probe B attached to terminals 2 through 8 respectively for P/N 22504-7 and 22504-11 or terminals 2 through 5 for P/N 22504-9 and 22504-13.

(5) After test remove the control unit from the test setup




Dielectric Test
Figure 701

B. Functionally test the assembled control unit in accordance with the following procedures.

(1) Perform an external leakage test (at simulated operating condition) in accordance with figure 702 and the following procedure.

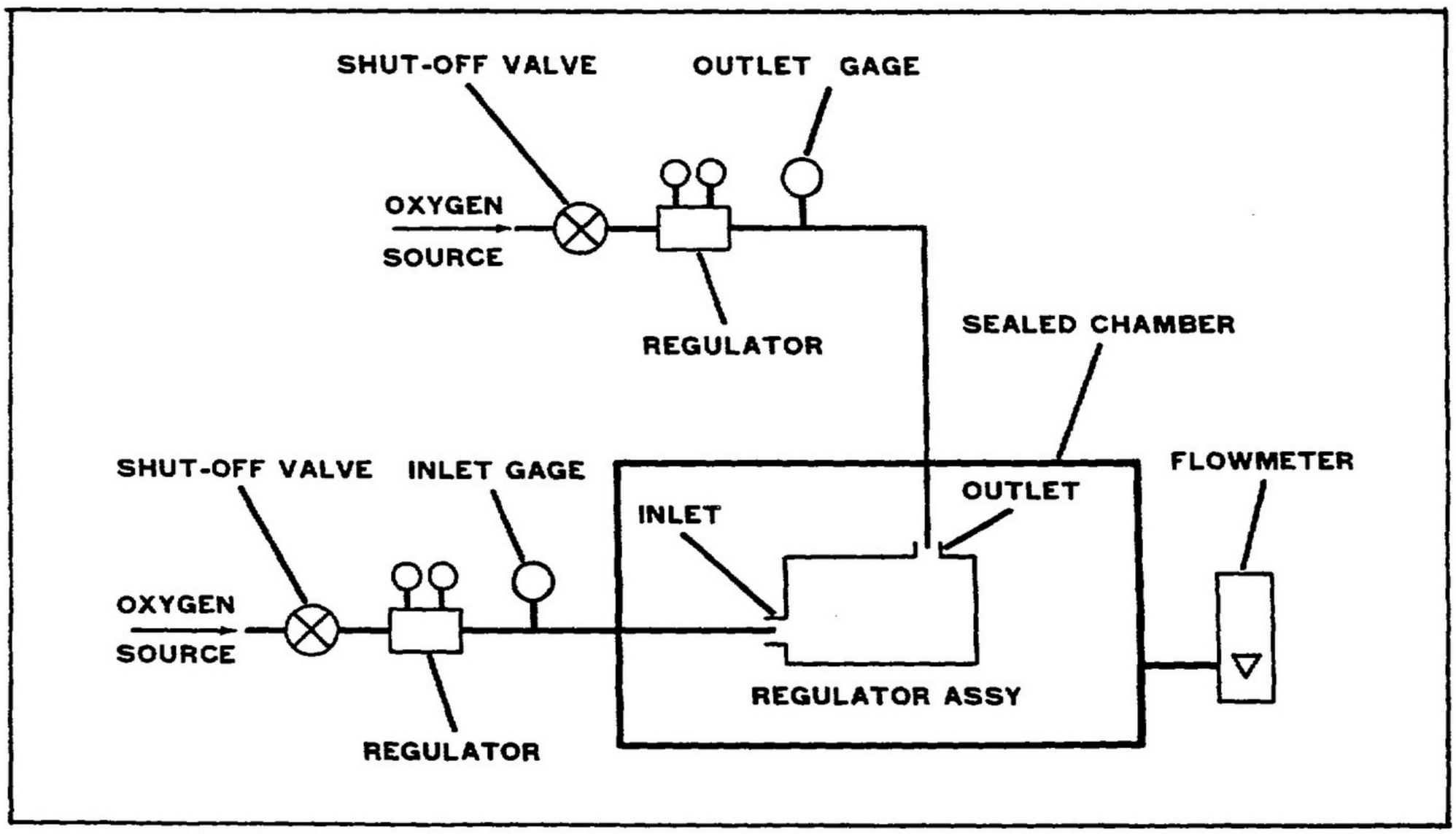
a. Place the unit in a sealed chamber and apply 2000 psi to the inlet and 65 psi to the outlet.

b. External leakage shall not exceed 0.020 lpm as indicated on flowmeter.

(2) Perform an internal leakage test (at non-operating conditions) in accordance with figure 703 and the following procedure.

a. Place the unit in a sealed chamber and apply 2000 psi to the inlet with the outlet vented.

b. Leakage shall not exceed 0.010 lpm (10 cc's per minute) as indicated on flowmeter.




External Leak Test Setup
Figure 702

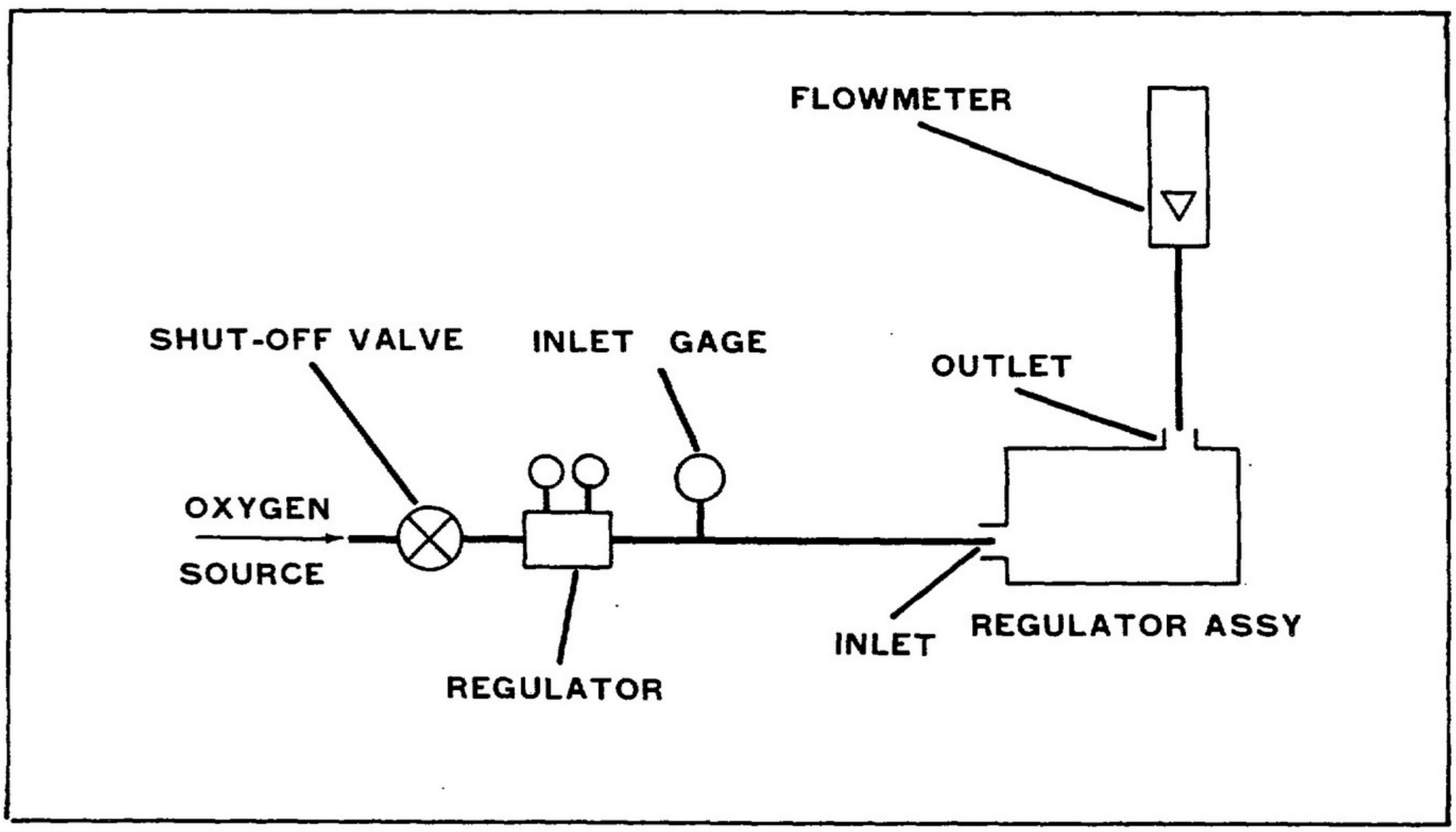
(3) Perform a first stage relief valve test in accordance with figure 703 and the following procedure.

a. Close all valves and switches on test stand.

b. Connect high pressure oxygen supply (2000 psi) to connection (W) of test stand. Connect vacuum supply to connection (V). Connect electrical cable (U) to 110 VAC outlet, and connect 28 volt DC power supply to terminals (Y) and (Z).

c. Remove plug (83, IPL figure 1) from control unit.

d. Connect control unit to test stand at inlet connection (S), outlet connection (R) and test port connection (FF).




Internal Leak Test Setup
Figure 703

e. Open valve (CC). Gradually raise pressure with regulator (JJ) until relief valve relieves through holes of adjustment cap (111). The control unit shall relieve at 140 ± 10 psi as indicated on gauge ($FF_1$).

f. Using regulator (JJ) reduce pressure to 120 psi. Attach a suitable cc flowmeter to adjustment cap (111). Leakage shall not exceed 0.010 lpm (10 cc's per minute) as indicated on cc flowmeter.

g. Close valve (CC) and open valve (DD) to bleed system. Remove external cc flowmeter. Close all test stand valves and switches, replace plug (83, IPL figure 1), and continue testing.

(4) Perform an outlet relief valve test in accordance with figure 703 and the following procedure.

a. Remove relief valve (101, IPL figure 1) cap.

b. Close valves (AA) and (F), open valve (BB) and gradually raise pressure with regulator (JJ) until outlet relief valve cracks. The working pressure as indicated on gauge (H) shall be 120 ± 10 psi.

c. Raise pressure with regulator (JJ) to 135 psi as indicated on gauge (H). Valve shall flow freely.

d. Reduce pressure to 80 psi. Attach an external cc flowmeter to relief valve (101). Leakage through the relief valve shall not exceed 0.010 lpm (10 cc's per minute) as indicated on external cc flowmeter.

e. Remove external cc flowmeter. Close valve (BB) and open valves (AA) and (F) to bleed system. Close all test stand valves and switches. Replace relief valve cap.

(5) Perform a flow test in accordance with figure 703 and the following procedure.

a. Place valve (B) in "HIGH FLOW" position; valve (C) in "ON" position and open valve (AA); close all other valves; turn switch (L) off.

b. Connect a 2000 psi oxygen source to connection (W); a vacuum source to connection (V); a 28 volt DC source to connection (Y) and (Z) and plug connector (U) into a 110 volt AC outlet.

NOTE: Do not energize the 28 volt power supply at this time.

c. Connect the control unit to outlet (R) and inlet (S) of the test stand. Plug connector (Q) to the receptacle of the control unit. Attach vacuum tubing (T) to the test connection provided on the cover of the control unit.

d. Energize the 28 volt DC power supply and turn vibrator switch (L) "ON".

e. Slowly turn on external oxygen supply and regulate with regulator (X) for 2000 psi indication on gauge (I). Green light (N) shall illuminate and meter (M) shall indicate 4.5 volts DC or approximately 2000 psi.

NOTE: Meter (M) will indicate volts DC on some test stands and psi on others. Use appropriate dimension. Meter (M) indication is only approximate and denotes that the transducer is functioning. To determine actual performance, refer to paragraph 6, step AZ.

f. By adjusting valves (D) and (E), slowly raise altitude applied to the control unit until it surges. The control unit shall surge at an altitude of 13,250 to 14,500 feet for 22504-7, -9 and -13 and at 14,000 to 15,000 for 22504-11. The surge pressure shall reach 50 psi minimum indication on gauge (H) in not more than 4 seconds. Green light (N) shall extinguish and red light (P) shall illuminate.

g. For 22504-7, -9, -11 ONLY, after pressure surge, adjust valves (D and E) for an indication of 40,000 feet on altimeter (K). Adjust valve (F) and allow pressure indication on gauge (J) to stabilize.

h. For 22504-7, -9, -11 ONLY, close valve (F). Place valve (B) in "LOW FLOW" position and place valve (C) in "OFF" position.

i. For 22504-7, -9, -11 ONLY, adjust valves (D) and (E) for an indication of 40,000 feet on altimeter (K). Adjust valve (F) for a flow of 10 lpm as indicated on flow indicator (G). Gauge (J) shall indicate 50.0 to 54.0 psi.

j. For 22504-7, -9, -11 ONLY, place valve (B) in "HIGH FLOW" position and place valve (C) in "ON" position.

k. For 22504-7, -9, -11 ONLY, adjust valve (F) for a flow of 1000 lpm as indicated on flow indicator (G). Gauge (J) shall indicate 50.0 to 54.0 psi. Adjust valve (F) for a flow of 10 lpm on flow indicator (G) and repeat step g.

l. Adjust valves (D) and (E) for an indication of 30,000 feet on altimeter (K). Adjust valve (F) for a flow of 10 lpm as indicated on flow indicator (G). Gauge (J) shall indicate 34.3 to 37.5 psi for 22504-7, -9, -11 and 37.0 to 40.3 psi for 22504-13.

m. Repeat step j and adjust valve (F) for a flow of 770 lpm as indicated on flow indicator (G). Gauge (J) shall indicate 34.4 to 37.5 psi for 22504-7, -9, -11 and 37.0 to 40.3 psi for 22504-13. Adjust valve (F) for a flow of 10 lpm on flow indicator (G) and repeat step h.

n. Adjust valves (D) and (E) for an indication of 20,000 feet on altimeter (K). Adjust valve (F) for a flow of 10 lpm as indicated on flow indicator (G). Gauge (J) shall indicate 10.8 to 13.8 psi for 22504-7, -9, -11 and 13.6 to 16.7 psi for 22504-13.

o. Repeat step j. Adjust valve (F) for a flow of 430 lpm as indicated on flow indicator (G). Gauge (J) shall indicate 10.8 to 13.8 psi for 22504-7, -9, -11 and 13.6 to 16.7 psi for 22504-13. Adjust valve (F) for 10 lpm flow as indicated on flow indicator (G) and repeat step h.

p. Adjust valves (D) and (E) for an indication of 12,000 feet on altimeter (K). Manually depress lever assembly (8, IPL figure 1) on the control unit. Control unit indicator shall indicate "OFF", red light (P) extinguishes and green light (N) illuminates. Open valve (F) and bleed system. Close valve (F).

q. Adjust valves (D) and (E) for an indication of 10,000 feet on altimeter (K). Energize (raise) switch (O). Unit shall surge, green light (N) shall extinguish, and red light (P) shall illuminate.

r. Adjust valves (D) and (E) for ground level. Allow outlet pressure on gauge (J) to stablize.

s. Adjust valve (F) for a flow of 10 LPM and repeat step h.

t. Adjust valve (F) for a flow of 10 LPM. Gauge (J) shall indicate 2.25 to 5.4 psi for 22504-7, -9, -11 and 5.0 to 8.2 psi for 22504-13.

u. Repeat step j and adjust valve (F) for a flow of 230 LPM. Gauge (J) shall indicate 2.25 to 5.4 psi for 22504-7, -9, -11 and 5.0 to 8.2 psi for 22504-13. Close valve (F).

v. Manually depress the reset mechanism on the control unit and release. Open valve (F) and slowly bleed the system. Control unit indicator shall indicate "OFF"; red light (P) shall extinguish and green light (N) shall illuminate.

w. Close valve (F) and regulate external pressure supply with regulator (X) to 1000 psi as indicated on gauge (I).

x. Place valve (B) in "HIGH FLOW" position; place valve (C) in "ON" position.

y. Repeat steps f, p, q and v.

z. Close valve (F) and regulate external pressure supply with regulator (X) to 300 psi as indicated on gauge (I).

aa. Repeat steps f, p, q and v.

ab. Close all valves, turn off or disconnect all pressure and electrical connections and remove control unit from test stand.

9. Trouble shooting

A. See figure 801 for trouble shooting chart.

| TROUBLE | PROBABLE CAUSE | REMEDY |
|---|---|---|
| Leakage evident when leak testing cover subassembly (19, IPL figure 1) (refer to Assembly, step C) | Faulty rolled fittings | Seal leaks by applying Hycar adhesive to joints of rolled fittings |
| | Screws (15, IPL figure 1) not tight enough | Tighten screws |
| | Faulty gasket (18) | Replace gasket |
| | Damaged cover subassembly (19) | Replace cover sub-assembly |
| Leakage evident when leak testing first stage components (refer to Assembly, step S) | Faulty packing (129) | Replace packing |
| | Scored, scratched or damaged seat (126) | Replace valve seat |
| | Pressure reducer valve assembly (123 through 128) loose in housing assembly (163) | Tighten pressure re-ducer valve assembly |
| | Contamination in valve seat area | Clean contaminated area |
| Unable to set up first stage pressure (refer to Assembly, step Y) | Punctured or damaged diaphragm assembly (119) | Replace diaphragm assembly |
| | Faulty spring (115) | Replace spring |
| | Spring (115) not seat-ing properly | Check seating of spring |
| | Leakage at flow control valve assembly (150 through 156) | Replace packing (157, IPL figure 1); replace valve (158) |

Trouble Shooting Chart (Sheet 1 of 3)
Figure 801

| TROUBLE | PROBABLE CAUSE | REMEDY |
|---|---|---|
| Leakage evident when leak testing actuation valve assembly (71 through 75) | Scored, scratched or damaged seat (75) | Replace valve seat |
| | Scratched or damaged stem (74) | Replace stem |
| | Housing (69) loose | Tighten housing |
| | Valve seat in housing assembly (163) scratched | Repair or replace assembly |
| Control unit fails to surge between 13,250 and 14,500 feet for 22504-7, -9 and -13 & between 14,000 and 15,000 for 22504-11 | Aneroid assembly (63) not adjusted properly | Adjust aneroid assembly per Assembly, step AK |
| | Faulty aneroid assembly (63) | Replace aneroid assembly |
| Outlet pressure of control unit fails to stabilize at the proper pressure after initial pressure surge | Capsule assembly (43) not adjusted properly | Adjust capsule assembly per Assembly, step AR (10) |
| | Leakage at surge valve | Replace defective parts |
| | Faulty capsule assembly (43) | Replace capsule assembly |
| | Pilot flow out of adjustment | Adjust screw (81) |
| Outlet pressure of control unit fails to stabilize at the proper pressure at altitude | Screw assembly (34) not properly adjusted | Adjust setscrew per Assembly, step AR (11) |
| Surge time exceeds 4 seconds maximum | Orifice and diaphragm assembly (136 through 143) not adjusted properly | Adjust orifice and diaphragm assembly per Assembly, step AM (2) |
| Unable to obtain proper slope | Support (39) not positioned properly | Position support per Assembly, step AR (18) |

Trouble Shooting Chart (Sheet 2 of 3)
Figure 801

| TROUBLE | PROBABLE CAUSE | REMEDY |
|---|---|---|
| Unit fails to turn on electrically | Faulty solenoid (20) | Replace solenoid |
| | Faulty cable assembly (85) | Replace cable assembly |
| | Faulty connection of electrical leads | Check connection at connectors (23) |
| | Detent assembly (50) out of adjustment | Adjust detent assembly |
| With inlet pressure applied, green light on test stand fails to illuminate | Faulty connection of electrical leads | Check connection |
| | Faulty pressure switch (91) | Replace pressure switch |
| | Faulty cable assembly (85) | Replace cable assembly |
| Control unit fails to meet requirements of Testing, step B (3) | Adjusting screw (110) not adjusted properly | Adjust screw per Assembly, step Y (6) |
| | Faulty diaphragm assembly (119) | Replace diaphragm assembly |
| Control unit fails to meet requirements of Testing, step B (4) | Faulty outlet relief valve (101) | Replace outlet relief valve |

Trouble Shooting Chart (Sheet 3 of 3)
Figure 801

10. Storage Instructions

A. Cap inlet and outlet fittings and electrical receptacle with protective closures.

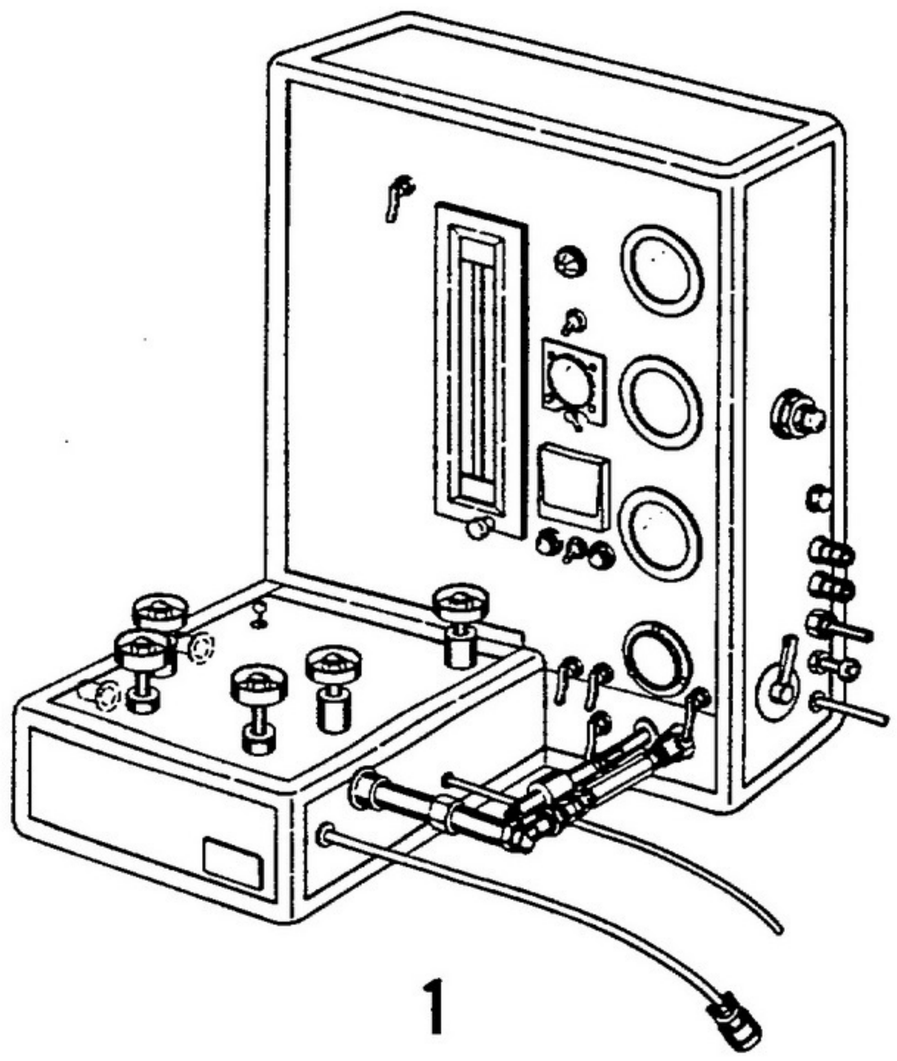
B. Wrap the control unit to prevent dust or other foreign matter from entering. Do not use any preservative coating on the control unit.

## 11. Special Tools, Fixtures and Test Equipment

A. All special tools, fixtures and test equipment required to overhaul the control unit are listed in figure 1001 and illustrated in figure 1002 and are manufactured by Scott Aviation.

| FIGURE 1002 ITEM NO. | PART NUMBER | PART NAME | APPLICATION |
|---|---|---|---|
| 1 | 22504-1-T53-1 or 800801-00-T53-1 | TEST STAND | Used to test the control unit |
| 2 | 22504-1-T53-2 | DIELECTRIC TESTER | Used to dielectric test cable assembly (85, IPL figure 1) |
| 3 | 22505-T52-1 | STYLUS | Used to install performed packings (13, 45, 82 and 84) |
| 4 | 24661-T91-1 | WRENCH | Used to remove/install cap (111) and retainer (117) |
| 5 | 25682-1-T58-1 | LEAK TEST HOLDING FIX-TURE | Used to leak test cover sub-assembly (19) |
| 6 | 25682-T58-2 | TEST COVER | Used during reassembly test-ing |
| 7 | 25694-T91-1 | WRENCH | Used to remove/install cap (131) |
| 8 | 25695-T91-1 | WRENCH | Used to remove/install lock nut (130) |
| 9 | 25880-T91-1 | WRENCH | Used to remove/install valve assembly (150 through 156) |
| 10 | 26164-T91-1 | WRENCH | Used to remove/install housing (69) |
| 11 | 800376-T52-1 | SPECIAL HAND TOOL | Used to install valve assembly (150 through 156) |
| 12 | 10000728-T52-1 | ALIGNMENT TOOL | Used to align frame (66) with housing assembly (163) |

Special Tools, Fixtures and Test Equipment List
Figure 1001



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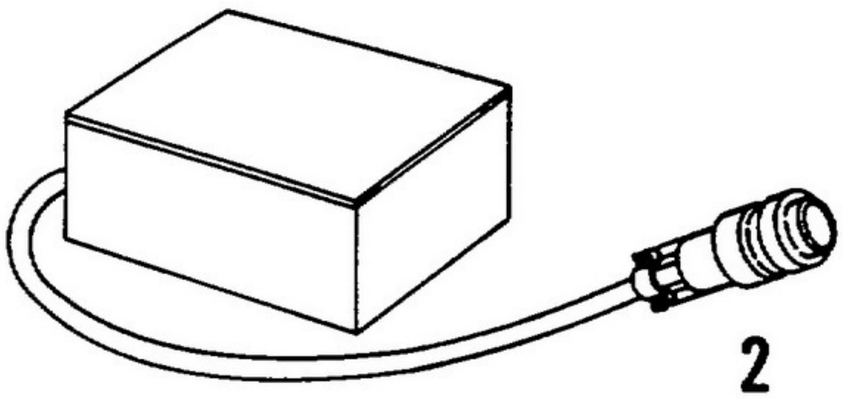

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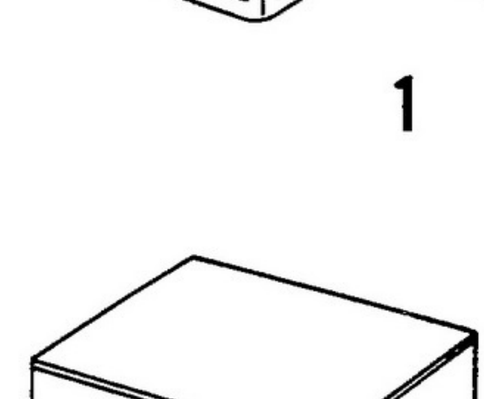

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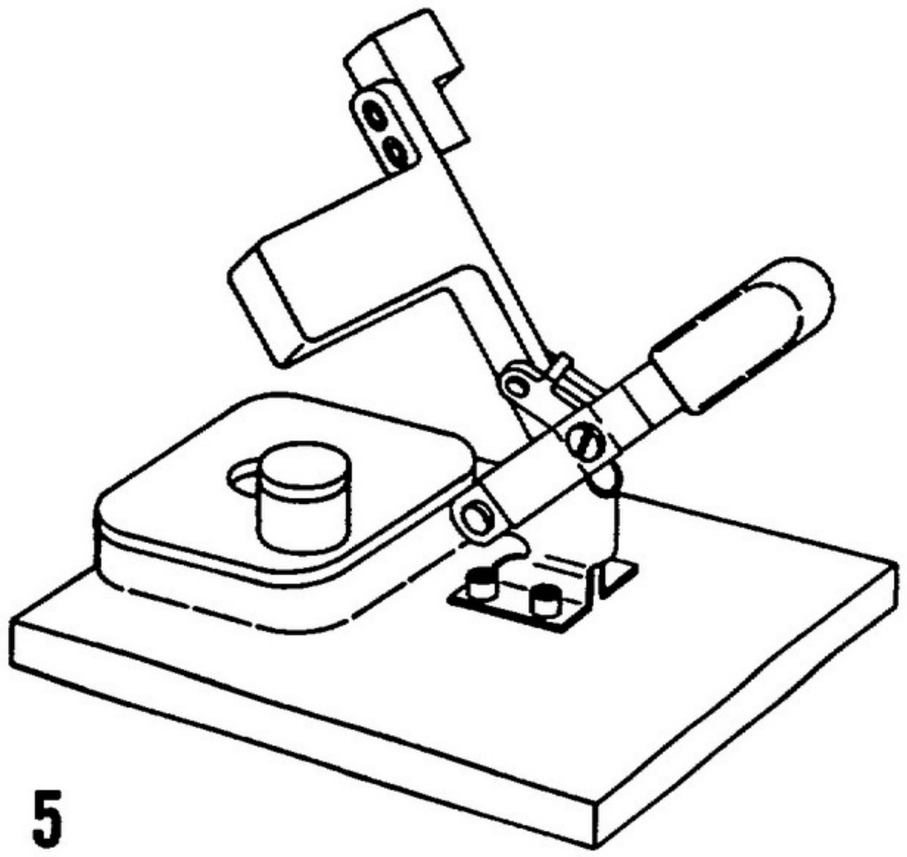

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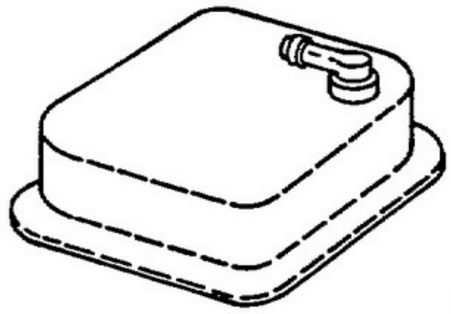

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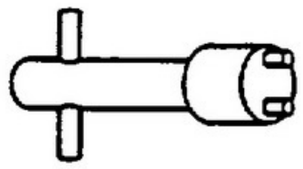

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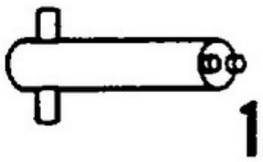

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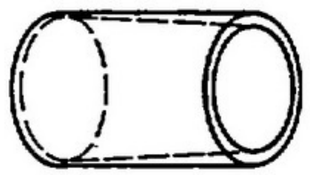


11

12

Special Tools, Fixtures and Test Equipment
Figure 1002

12. Illustrated Parts List

A. This Illustrated Parts List lists and describes the parts of the 22504-7, 22504-9, 22504-11 and 22504-13 Electro-Pneumatic Continuous Flow Control Units.

(1) The Illustrated Parts List consists of a parts listing and a completely indexed exploded view drawing. Each assembly listed is followed immediately by its component parts, properly indented thereunder, to show their relationship to the assembly.

(2) The quantities listed in the "UNITS PER ASSY" column are the total quantity used per control unit at the location indicated.

(3) The parts numbers listed in the "PART NUMBER" column are Scott Aviation part numbers except standard parts, which are listed by "AN" and "MS" part numbers, and vendor parts, which are listed by vendor part numbers. The following list contains the code and name and address of the vendors supplying items for the control unit.

| CODE | VENDOR'S NAME AND ADDRESS |
|---|---|
| V02697 | Parker Seal Co.<br>Division of Parkerhannfin Corp.<br>Lexington, Kentucky |
| V03520 | American Gas & Chemicals, Inc.<br>New York, New York |
| V05972 | Loctite Corp.<br>Newington, Connecticut |
| V07098 | Union Carbide Corp.<br>Linde Division<br>Tonawanda, New York |
| V07322 | Minnesota Rubber Co.<br>Minneapolis, Minnesota |
| V08800 | General Electric Co.<br>Insulating Materials Dept.<br>Schenectady, New York |
| V18873 | E.I. DuPont DeNemours & Co., Inc.<br>Wilmington, Delaware |
| V71984 | Hooker Chemical Corp.<br>Niagara Falls, New York |

| CODE | VENDOR'S NAME AND ADDRESS |
|---|---|
| V75237 | B.F. Goodrich Chemical Co.<br>Cleveland, Ohio |
| V75237 | The Kaynar Co.<br>Division of Reiner Industries Inc.<br>Pico Rivera, California |

(4) Parts used on only one part number control unit are indicated by letter symbol immediately following the description of a part in the "EFFECT CODE" column. In cases where the "EFFECT CODE" column has been left blank, parts listed are common to all control units.

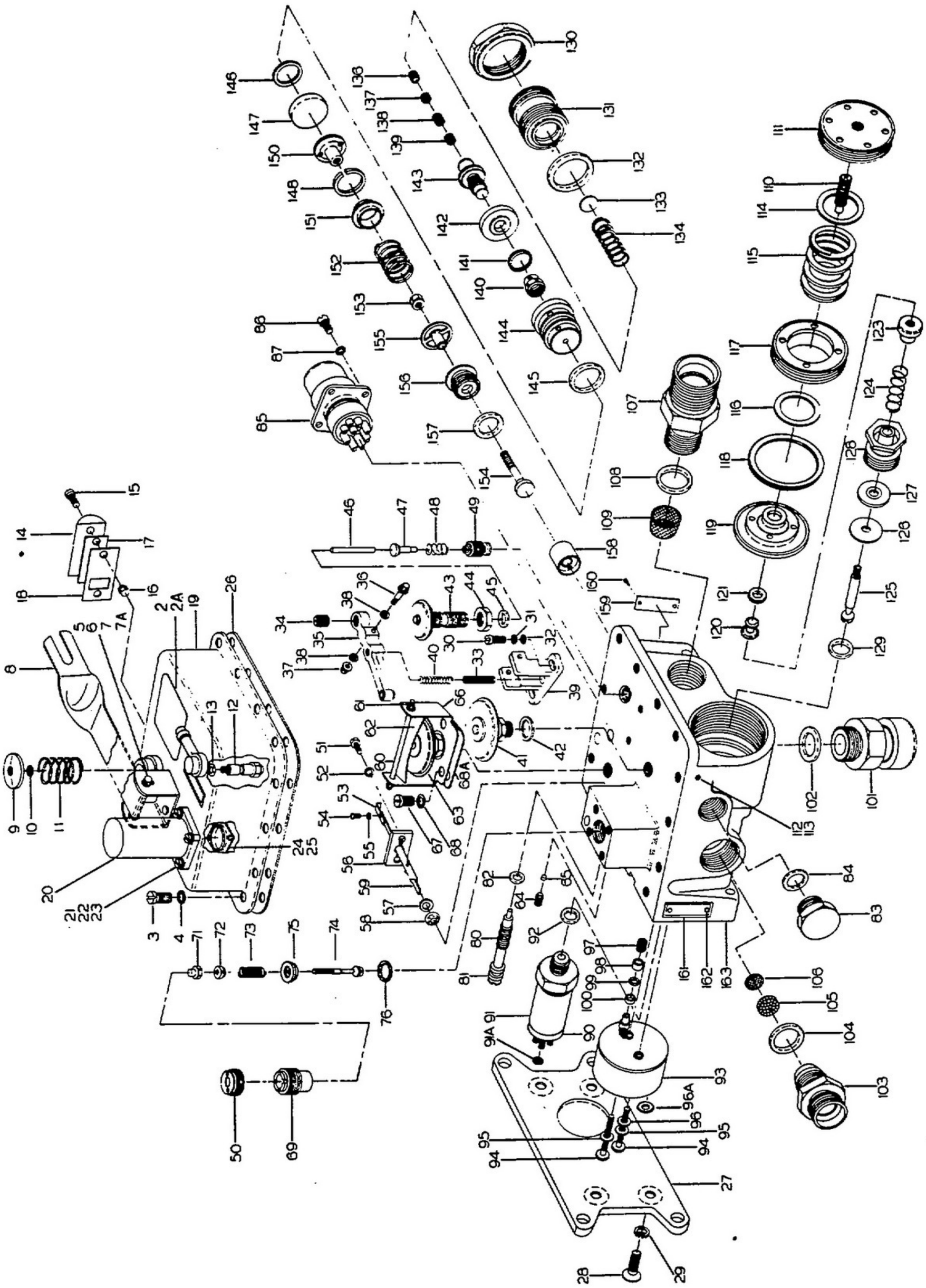
| PART NUMBER | EFFECT CODE |
|---|---|
| 22504-7 | A |
| 22504-9 | B |
| 22504-11 | C |
| 22504-13 | D |

(5) A Numerical Index has been provided at the conclusion of the Group Assembly Parts List. Part numbers have been arranged in accordance with Specification ATA 100.

B. How to use this Illustrated Parts List.

(1) If neither the part number nor the nomenclature is known, the part can be found by comparison with the exploded view illustration. When located on the illustration, the index number will refer to the line in the Group Assembly Parts List with the part number and the nomenclature.

(2) When the part number is known, refer to the Numerical Index and find the part number. Opposite the part number is the figure and item number which refers to the Group Assembly Parts List. Proper nomenclature is opposite the item number on the Group Assembly List page.



Electro-Pneumatic Continuous Flow Control Unit
Figure 1

| FIG. ITEM | PART NUMBER | AIRLINE STOCK NO. | NOMENCLATURE 1234567 | EFF CODE | UNITS PER ASSY | |
|---|---|---|---|---|---|---|
| 1-1 | 22504-7 | | CONTROL UNIT-CONTINUOUS FLOW-ELECTRO-PNEU | A | RF | |
| -1A | 22504-9 | | CONTROL UNIT-CONTINUOUS FLOW-ELECTRO-PNEU | B | RF | |
| -1B | 22504-11 | | CONTROL UNIT-CONTINUOUS FLOW-ELECTRO-PNEU | C | RF | |
| -1C | 22504-13 | | CONTROL UNIT-CONTINUOUS FLOW-ELECTRO-PNEU | D | RF | R |
| 2 | 25737-00 | | . PLATE-ID | | 1 | |
| 2A | 10006822 | | . PLATE-ID | D | 1 | R |
| -2N | 802956-01 | | . COVER ASSEMBLY | | 1 | |
| | | | (ATTACHING PARTS) | | | |
| 3 | 33359-213 | | . SCREW | | 13 | |
| 4 | MS35333-70 | | . WASHER | | 13 | |
| | | | ----*---- | | | |
| 5 | MS20392-2-25 | | . . PIN | | 1 | |
| | | | (ATTACHING PARTS) | | | |
| 6 | MS24665-149 | | . . PIN | | 1 | R |
| 7 | AN960-10 | | . . WASHER | | 2 | |
| 7A | 33451-009 | | . . WASHER | | AR | |
| | | | ----*---- | | | |
| 8 | 25393-13 | | . . LEAF-LOWER | | 1 | |
| 9 | 25387-00 | | . . BUTTON | | 1 | |
| 10 | MS35338-40 | | . . WASHER | | 1 | |
| 11 | 25380-00 | | . . SPRING | | 1 | |
| 12 | 10000725 | | . . PLUNGER | | 1 | |
| 13 | 2-5 (COMP S417-7) | | . . PACKING-PREFORMED (V02697) | | 1 | |
| 14 | 25307-00 | | . . LENS | | 1 | |
| | | | (ATTACHING PARTS) | | | |
| 15 | AN500D2-5 | | . . SCREW | | 2 | |
| 16 | 23249-01 | | . . NUT | | 2 | |
| | | | ----*---- | | | |
| 17 | 25383-00 | | . . PLATE-LENS | | 1 | |
| 18 | 25382-00 | | . . GASKET-PLATE | | 1 | |
| 19 | 25682-01 | | . . COVER SUBASSY | | 1 | |
| 20 | 802957-01 | | . SOLENOID ASSY | | 1 | |
| | | | (ATTACHING PARTS) | | | |
| 21 | 33359-215 | | . SCREW | | 4 | |
| 22 | MS35338-40 | | . WASHER | | 4 | |
| 23 | 34131 | | . CONN-PARALLEL (USED ON 22504-7 UP TO SN 1404 & 22504-9 UNITS UP TO SN1014) | | 2 | |
| | | | ----*---- | | | |

- ITEM NOT ILLUSTRATED

| FIG. ITEM | PART NUMBER | AIRLINE STOCK NO. | NOMENCLATURE 1234567 | EFF CODE | UNITS PER ASSY |
|---|---|---|---|---|---|
| 1 24 | 25397-00 | | . GASKET-VALVE LIFTER | | 1 |
| 25 | 13576-9 | | . TUBING-PLASTIC (USED ON ALL 22504-11 UNITS; SN1015 & SUBQ ON 22504-9 UNITS; SN 1405 & SUBQ ON 22504-7 UNITS) | | 1 |
| -25A | 13576-7 | | . TUBING-PLASTIC (USED ON 22504-7 UNITS THRU SN 1404 AND 22504-9 UNITS THRU SN 1014) | AB | 1 |
| 26 | 24509-00 | | . GASKET-COVER SUBASSY | | 1 |
| 27 | 24686-00 | | . PLATE-MOUNTING | | 1 |
| | | | (ATTACHING PARTS) | | |
| 28 | MS35191-272 | | . SCREW | | 4 |
| 29 | MS35336-23 | | . WASHER | | 4 |
| | | | ----*---- | | |
| -29A | 802955-01 | | . LEVER ASSEMBLY | | 1 |
| | | | (ATTACHING PARTS) | | |
| 30 | 33359-228 | | . SCREW | | 2 |
| 31 | MS15795-805 | | . WASHER | | 2 |
| 32 | MS35333-71 | | . WASHER | | 2 |
| | | | ----*---- | | |
| 33 | AN565FC4H10 | | . . SETSCREW | | 1 |
| 34 | 25488-00 | | . . SCREW ASSY (USED ON ALL 22504-11 and 22504-13 UNITS; SN1015 & SUBQ ON 22504-9 UNITS; SN1617 & SUBQ ON 22504-7 UNITS) | | 1 |
| -34A | 25292 | | . . SCREW ASSY (USED ON 22504-7 UNITS THRU SN1616 AND 22504-9 UNITS THRU SN1014 | AB | 1 |

- ITEM NOT ILLUSTRATED

| FIG. ITEM | PART NUMBER | AIRLINE STOCK NO. | NOMENCLATURE 1234567 | EFF CODE | UNITS PER ASSY |
|---|---|---|---|---|---|
| 1 35 | 25283-01 | | . . LEVER ASSEMBLY (ATTACHING PARTS) | | 1 |
| 36 | 25478-00 | | . . PIN-LEVER | | 1 |
| 37 | 23249-01 | | . . NUT | | 1 |
| 38 | 10001500 | | . . WASHER (USED ON ALL 22504-11 UNITS; SN1015 & SUBQ ON 22504-9 UNITS AND SN1617 & SUBQ ON 22504-7 UNITS) | | 2 |
| -38A | AN960-3 | | . . WASHER (USED ON 22504-7 UNITS THRU SN1616 AND 22504-9 UNITS THRU SN1014) | AB | 2 |
| | | | ----*---- | | |
| 39 | 23319-01 | | . . SUPPORT-LEVER | | 1 |
| 40 | 25306-00 | | . SPRING | | 1 |
| 41 | 23372-00 | | . ANEROID ASSEMBLY | | 1 |
| 42 | MS35338-44 | | . WASHER | | 1 |
| 43 | 23373-00 | | . CAPSULE ASSEMBLY | | 1 |
| 44 | AN316C5 | | . NUT-LOCK | | 1 |
| 45 | MS9385-02 | | . PACKING-PREFORMED | | 1 |
| 46 | 24664-00 | | . PIN-PUSH | | 1 |
| 47 | 24665-00 | | . STEM | | 1 |
| 48 | 25308-00 | | . SPRING | | 1 |
| 49 | 23381-01 | | . SEAT ASSY-STEM | | 1 |
| -49A | 25885-00 | | . . GASKET | | 1 |
| 50 | 25384-01 | | . DETENT ASSEMBLY | | 1 |
| -50A | 802954-01 | | . INDICATOR ASSY (ATTACHING PARTS) | | 1 |
| 51 | 33359-213 | | . SCREW | | 2 |
| 52 | MS35333-70 | | . WASHER | | 2 |
| | | | ----*---- | | |
| 53 | 25680-00 | | . . INDICATOR (ATTACHING PARTS) | | 1 |
| 54 | AN520-0R3 | | . . SCREW | | 1 |
| 55 | MS27183-1 | | . . WASHER | | 1 |
| | | | ----*---- | | |
| 56 | 25394-00 | | . . PLATE | | 1 |
| 57 | 25723-00 | | . . WASHER-BACK-UP | | 1 |
| 58 | 25736-00 | | . . WASHER-SEAL | | 1 |
| 59 | 25304-03 | | . . LEVER ASSY-AUTO. ACTUATION | | 1 |

- ITEM NOT ILLUSTRATED

| FIG. ITEM | PART NUMBER | AIRLINE STOCK NO. | NOMENCLATURE 1234567 | EFF CODE | UNITS PER ASSY |
|---|---|---|---|---|---|
| 1 60 | 3501-02 | | . BOLT-TIE (ATTACHING PARTS) | | 1 |
| 61 | 58526-00 | | . NUT ----*---- | | 2 |
| 62 | 10000726 | | . SPRING-LEAF | | 1 |
| 63 | 23372-00 | | . ANEROID ASSEMBLY (ATTACHING PARTS) | | 1 |
| 64 | AN565AC4H4 | | . SETSCREW | | 1 |
| 65 | 2837-02 | | . INSERT ----*---- | | 1 |
| 66 | 10000728 | | . FRAME-SPRING (ATTACHING PARTS) | | 1 |
| 67 | MS51957-13 | | . SCREW | | 3 |
| 68 | MS35333-70 | | . WASHER ----*---- | | 3 |
| 68A | 10005577 | | . SHIM | | AR |
| 69 | 26164-01 | | . HOUSING-VALVE ASSY | | 1 |
| -70 | 802242-01 | | . VALVE ASSY-ACT.- ON-OFF | | 1 |
| 71 | 25699-00 | | . . NUT | | 1 |
| 72 | 25698-00 | | . . NUT | | 1 |
| 73 | 25481-00 | | . . SPRING | | 1 |
| 74 | 10873-00 | | . . STEM | | 1 |
| 75 | 10002506 | | . . SEAT | | 1 |
| 76 | MS9068-012 | | . PACKING-PREFORMED | | 1 |
| -77 | DELETED | | | | |
| -78 | DELETED | | | | |
| -79 | 25289-01 | | . SCREW ASSY-ADJ- PILOT FLOW | | 1 |
| 80 | 2837-01 | | . . INSERT | | 1 |
| 81 | 25289-03 | | . . SCREW | | 1 |
| 82 | MS9068-008 | | . PACKING-PREFORMED | | 1 |
| 83 | 25288-00 | | . PLUG-TEST | | 1 |
| 84 | MS9385-02 | | . PACKING-PREFORMED | | 1 |
| 85 | 25683-11 | | . CABLE ASSY-ELEC (USED ON 22504-7 UNITS UP TO SN1404) | A | 1 |
| 85A | 800798-00 | | . CABLE ASSY-ELEC (USED ON ALL 22504-11 UNITS AND ON SN1405 & SUBQ ON 22504-7 UNITS) | AC | 1 |

- ITEM NOT ILLUSTRATED

| FIG. ITEM | PART NUMBER | AIRLINE STOCK NO. | NOMENCLATURE 1234567 | EFF CODE | UNITS PER ASSY | |
|---|---|---|---|---|---|---|
| 1-85B | 800549-00 | | . CABLE ASSY-ELEC (USED ON 22504-9 UNITS THRU SN1014) | B | 1 | |
| -85C | 800799-00 | | . CABLE ASSY-ELEC (USED ON ALL 22504-13 UNITS AND ON 22504-9 UNITS SN1015 & SUBQ) (ATTACHING PARTS) | BD | 1 | |
| 86 | 33359-213 | | . SCREW | | 4 | |
| 87 | MS35333-70 | | . WASHER | | 4 | |
| -88 | MS51957-26 | | . SCREW | BD | 1 | |
| -89 | MS35333-71 | | . WASHER | BD | 1 | |
| | | | ----*---- | | | |
| 90 | 28965-00 | | . DISC-INSULATION (USED WITH PRESSURE SWITCH P/N 607G15, MFD BY V09049) | | AR | |
| -90A | 10001928 | | . DISC-INSULATION (USED WITH PRESSURE SWITCH P/N CA-4001 MFD BY V17247) | | AR | |
| 91 | 23374-00 | | . SWITCH-PRESSURE (THREE NUTS SUPPLIED) (ATTACHING PARTS) | | 1 | |
| 91A | 1902-00 | | . WASHER (V78189) (USED ON ALL 22504-11 AND 22504-13 UNITS; SN1015 & SUBQ ON 22504-9 UNITS AND SN1014 & SUBQ ON 22504-7 UNITS) | | 3 | |
| | | | ----*---- | | | |
| 92 | MS9385-03 | | . PACKING-PREFORMED | | 1 | |
| 93 | 25685-00 | | . TRANSDUCER-PRESSURE (THREE SCREWS SUPPLIED) (ATTACHING PARTS) | AC | 1 | R |
| 94 | MS15937-34 | | . SCREW | AC | 2 | |
| 95 | MS35333-71 | | . WASHER | AC | 2 | |
| 96 | AN960-6L | | . WASHER | AC | 1 | |
| 96A | 1902-00 | | . WASHER (V78189) (USED ON ALL 22504-11 UNITS AND SN1045 & SUBQ ON 22504-7 UNITS) | AC | 3 | |

- ITEM NOT ILLUSTRATED

| FIG. ITEM | PART NUMBER | AIRLINE STOCK NO. | NOMENCLATURE 1234567 | EFF CODE | UNITS PER ASSY | |
|---|---|---|---|---|---|---|
| 1 97 | 6472-82 | | . SCREEN-FILTER | AC | 1 | |
| 98 | 22151-01 | | . SLEEVE | AC | 1 | |
| 99 | MS9068-006 | | . PACKING-PREFORMED | AC | 1 | |
| 100 | 22152-01 | | . RING-BACK-UP | AC | 1 | |
| 101 | 25603-00 | | . VALVE-RELIEF | | 1 | |
| 102 | MS9385-08 | | . PACKING-PREFORMED | | 1 | |
| 103 | MS21900-5C | | . UNION | | 1 | |
| 104 | 3-5 (COMP V747-75) | | . PACKING-PREFORMED (V02697) | | 1 | |
| 105 | 24202-01 | | . FILTER-SCREEN | | 1 | |
| 106 | 8938-04 | | . FILTER-SCREEN | | 1 | |
| 107 | 25886-00 | | . FITTING-OUTLET | ABC | 1 | |
| -107A | 10006807 | | . REDUCER-EXTERNAL THREAD | D | 1 | R |
| 108 | MS9385-08 | | . PACKING-PREFORMED | | 1 | |
| 109 | 25711-00 | | . FILTER-SCREEN | | 1 | |
| 110 | 24660-02 | | . SCREW-ADJUSTING | | 1 | |
| 111 | 24661-00 | | . CAP-ADJUSTMENT | | 1 | |
| | | | (ATTACHING PARTS) | | | |
| 112 | AN565C4H4 | | . SETSCREW | | 1 | |
| 113 | 2837-02 | | . INSERT | | 1 | |
| | | | ----*---- | | | |
| 114 | 22549-00 | | . RING-SLIP | | 1 | |
| 115 | 25875-00 | | . SPRING | | 1 | |
| 116 | 22549-00 | | . RING-SLIP | | 1 | |
| 117 | 25713-00 | | . RETAINER-DIAPHRAGM | | 1 | |
| 118 | 10000614 | | . RING-THRUST | | 1 | |
| 119 | 800325-00 | | . DIAPHRAGM ASSY | | 1 | |
| 120 | 10000626 | | . POPPET | | 1 | |
| 121 | Q4006 (COMP 366Y) | | . PACKING-PREFORMED | | 1 | |
| -122 | 25738-01 | | . VALVE ASSY-PRESS. RED. | | 1 | |
| 123 | 25720-00 | | . . HEAD-STEM | | 1 | |
| 124 | 10000611 | | . . SPRING | | 1 | |
| 125 | 25719-00 | | . . STEM-VALVE | | 1 | |
| 126 | 25602-00 | | . . SEAT-INLET VALVE | | 1 | |
| 127 | 22764-00 | | . . WASHER-BACK-UP | | 1 | |
| 128 | 22762-00 | | . . GUIDE-STEM | | 1 | |
| 129 | MS9068-013 | | . PACKING-PREFORMED | | 1 | |
| 130 | 25695-00 | | . NUT-LOCK | | 1 | |
| 131 | 25694-00 | | . CAP | | 1 | |
| 132 | MS9068-023 | | . PACKING-PREFORMED | | 1 | |
| 133 | 25882-00 | | . DISC-SLIP | | 1 | |
| 134 | 25286-00 | | . SPRING | | 1 | |

- ITEM NOT ILLUSTRATED

| FIG. ITEM | PART NUMBER | AIRLINE STOCK NO. | NOMENCLATURE 1234567 | EFF CODE | UNITS PER ASSY |
|---|---|---|---|---|---|
| 1-135 | 25530-01 | | . ORIFICE & DIAPH ASSY | | 1 |
| 136 | 55573-00 | | . . SETSCREW-HEX SOCKET | | 1 |
| 137 | 8938-01 | | . . SCREEN-FILTER | | 1 |
| 138 | 50330-00 | | . . PKG-GLASS WOOL CORD | | AR |
| 139 | 8938-01 | | . . SCREEN | | 1 |
| 140 | 25532-00 | | . . NUT-HEXAGON | | 1 |
| 141 | 25533-00 | | . . RING | | 1 |
| 142 | 25883-00 | | . . DIAPHRAGM | | 1 |
| 143 | 25531-01 | | . . ORIFICE ASSY | | 1 |
| 144 | 25693-00 | | . BODY-PRESS. SURGE VALVE | | 1 |
| 145 | MS9068-020 | | . PACKING-PREFORMED | | 1 |
| 146 | 23371-00 | | . WASHER-THRUST | | 1 |
| 147 | 23368-00 | | . DIAPHRAGM | | 1 |
| 148 | 10000736 | | . RING-DAMPER | | 1 |
| -149 | 800376-00 | | . VALVE ASSY-FLOW CONTROL | | 1<br>1 |
| 150 | 10000734 | | . . RETAINER-RING | | 1 |
| 151 | 10000735 | | . . GUIDE-SPRING | | 1 |
| 152 | 25879-00 | | . . SPRING | | 1 |
| 153 | AN340C4 | | . . NUT | | 1 |
| 154 | 25715-00 | | . . STEM-VALVE | | 1 |
| 155 | 25718-00 | | . . GUIDE-STEM | | 1 |
| 156 | 25724-01 | | . . SEAT ASSEMBLY | | 1 |
| 157 | MS9068-015 | | . PACKING-PREFORMED | | 1 |
| 158 | 25722-00 | | . VALVE-SPOOL | | 1 |
| 159 | 25297-00 | | . PLATE-INST (ATTACHING PARTS) | | 1 |
| 160 | MS21318-1 | | . SCREW ----*---- | | 2 . |
| 161 | 10554-00 | | . PLATE-NAME (ATTACHING PARTS) | | 1 |
| 162 | MS21318-1 | | . SCREW ----*---- | | 2 |
| 163 | 25290-01 | | . HOUSING ASSEMBLY | AC | 1 |
| -164 | 25290-11 | | . HOUSING ASSEMBLY | BD | 1 |

- ITEM NOT ILLUSTRATED

| PART NUMBER | AIRLINE PART NO. | CH-SECT-UNIT-FIG-ITEM | TTL REQ |
|---|---|---|---|
| AN316C5 | | 35- 20 -118B- 1 44 | 1 |
| AN340C4 | | 35- 20 -118B- 1 153 | 1 |
| AN500D2-5 | | 35- 20 -118B- 1 15 | 2 |
| AN520-0R3 | | 35- 20 -118B- 1 54 | 1 |
| AN565C632R4 | | 35- 20 -118B- 1 - 88 | 1 |
| AN565AC4H4 | | 35- 20 -118B- 1 64 | 2 |
| AN565FC4H10 | | 35- 20 -118B- 1 33 | 1 |
| AN960-10 | | 35- 20 -118B- 1 7 | 3 |
| AN960-3 | | 35- 20 -118B- 1 - 38A | 2 |
| AN960-6L | | 35- 20 -118B- 1 96 | 1 |
| MS15795-805 | | 35- 20 -118B- 1 31 | 2 |
| MS20392-2-25 | | 35- 20 -118B- 1 5 | 1 |
| MS21318-1 | | 35- 20 -118B- 1 160 | 4 |
| MS21900-5C | | 35- 20 -118B- 1 103 | 1 |
| MS24665-149 | | 35- 20 -118B- 1 6 | 1 |
| MS27183-1 | | 35- 20 -118B- 1 55 | 1 |
| MS35191-272 | | 35- 20 -118B- 1 28 | 4 |
| MS35333-70 | | 35- 20 -118B- 1 4 | 22 |
| MS35333-71 | | 35- 20 -118B- 1 32 | 5 |
| MS35336-23 | | 35- 20 -118B- 1 29 | 4 |
| MS35338-40 | | 35- 20 -118B- 1 10 | 5 |
| MS35338-44 | | 35- 20 -118B- 1 42 | 1 |
| MS51937-13 | | 35- 20 -118B- 1 94 | 2 |
| MS51957-13 | | 35- 20 -118B- 1 67 | 3 |
| MS9068-006 | | 35- 20 -118B- 1 99 | 1 |
| MS9068-008 | | 35- 20 -118B- 1 82 | 1 |
| MS9068-012 | | 35- 20 -118B- 1 76 | 1 |
| MS9068-013 | | 35- 20 -118B- 1 129 | 1 |
| MS9068-015 | | 35- 20 -118B- 1 157 | 1 |
| MS9068-020 | | 35- 20 -118B- 1 145 | 1 |
| MS9068-023 | | 35- 20 -118B- 1 132 | 1 |
| MS9385-02 | | 35- 20 -118B- 1 45 | 2 |
| MS9385-03 | | 35- 20 -118B- 1 92 | 1 |
| MS9385-08 | | 35- 20 -118B- 1 102 | 2 |
| Q4006 (COMP 366Y) | | 35- 20 -118B- 1 121 | 1 |
| 10000611 | | 35- 20 -118B- 1 124 | 1 |
| 10000614 | | 35- 20 -118B- 1 118 | 1 |
| 10000626 | | 35- 20 -118B- 1 120 | 1 |
| 10000725 | | 35- 20 -118B- 1 12 | 1 |
| 10000726 | | 35- 20 -118B- 1 62 | 1 |
| 10000728 | | 35- 20 -118B- 1 66 | 1 |
| 10000734 | | 35- 20 -118B- 1 150 | 1 |
| 10000735 | | 35- 20 -118B- 1 151 | 1 |
| 10000736 | | 35- 20 -118B- 1 148 | 1 |
| 10001500 | | 35- 20 -118B- 1 38 | 2 |
| 10001928 | | 35- 20 -118B- 1 - 90A | AR |

| PART NUMBER | AIRLINE PART NO. | CH-SECT-UNIT-FIG-ITEM | TTL REQ |
|---|---|---|---|
| 10002506 | | 35- 20 -118B- 1 75 | 1 |
| 10005577 | | 35- 20 -118B- 1 68A | AR |
| 10006807 | | 35- 20 -118B- 1 -107A | 1 |
| 10006822 | | 35- 20 -118B- 1 2A | 1 |
| 10554-00 | | 35- 20 -118B- 1 161 | 1 |
| 10873-00 | | 35- 20 -118B- 1 74 | 1 |
| 13576-7 | | 35- 20 -118B- 1 25A | 1 |
| 13576-9 | | 35- 20 -118B- 1 25 | 1 |
| 1902-00 | | 35- 20 -118B- 1 91A | 6 |
| | | 35- 20 -118B- 1 96A | |
| 2-5 (COMP S417-7) | | 35- 20 -118B- 1 13 | 1 |
| 20489-00 | | 35- 20 -118B- 1 138 | AR |
| 22151-01 | | 35- 20 -118B- 1 98 | 1 |
| 22152-01 | | 35- 20 -118B- 1 100 | 1 |
| 22504-11 | | 35- 20 -118B- 1 - 1B | RF |
| 22504-13 | | 35- 20 -118B- 1 - 1C | RF |
| 22504-7 | | 35- 20 -118B- 1 - 1 | RF |
| 22504-9 | | 35- 20 -118B- 1 - 1A | RF |
| 22549-00 | | 35- 20 -118B- 1 114 | 2 |
| | | 35- 20 -118B- 1 116 | |
| 22762-00 | | 35- 20 -118B- 1 128 | 1 |
| 22764-00 | | 35- 20 -118B- 1 127 | 1 |
| 23249-01 | | 35- 20 -118B- 1 16 | 3 |
| | | 35- 20 -118B- 1 37 | |
| 23319-01 | | 35- 20 -118B- 1 39 | 1 |
| 23368-00 | | 35- 20 -118B- 1 147 | 1 |
| 23371-00 | | 35- 20 -118B- 1 146 | 1 |
| 23372-00 | | 35- 20 -118B- 1 41 | 2 |
| | | 35- 20 -118B- 1 63 | |
| 23373-00 | | 35- 20 -118B- 1 43 | 1 |
| 23374-00 | | 35- 20 -118B- 1 91 | 1 |
| 23381-01 | | 35- 20 -118B- 1 49 | 1 |
| 24202-01 | | 35- 20 -118B- 1 105 | 1 |
| 24509-00 | | 35- 20 -118B- 1 26 | 1 |
| 24660-02 | | 35- 20 -118B- 1 110 | 1 |
| 24661-00 | | 35- 20 -118B- 1 111 | 1 |
| 24664-00 | | 35- 20 -118B- 1 46 | 1 |
| 24665-00 | | 35- 20 -118B- 1 47 | 1 |
| 24686-00 | | 35- 20 -118B- 1 27 | 1 |
| 25283-01 | | 35- 20 -118B- 1 35 | 1 |
| 25286-00 | | 35- 20 -118B- 1 134 | 1 |
| 25288-00 | | 35- 20 -118B- 1 83 | 1 |
| 25289-03 | | 35- 20 -118B- 1 81 | 1 |
| 25289-1 | | 35- 20 -118B- 1 -79 | 1 |
| 25290-01 | | 35- 20 -118B- 1 163 | 1 |
| 25290-11 | | 35- 20 -118B- 1 -164 | 1 |
| 25292 | | 35- 20 -118B- 1 - 34A | 1 |
| 25297-00 | | 35- 20 -118B- 1 159 | 1 |

| PART NUMBER | AIRLINE PART NO. | CH-SECT-UNIT-FIG-ITEM | TTL REQ |
|---|---|---|---|
| 25304-03 | | 35- 20 -118B- 1 59 | 1 |
| 25306-00 | | 35- 20 -118B- 1 40 | 1 |
| 25307-00 | | 35- 20 -118B- 1 14 | 1 |
| 25308-00 | | 35- 20 -118B- 1 48 | 1 |
| 25380-00 | | 35- 20 -118B- 1 11 | 1 |
| 25382-00 | | 35- 20 -118B- 1 18 | 1 |
| 25383-00 | | 35- 20 -118B- 1 17 | 1 |
| 25384-01 | | 35- 20 -118B- 1 50 | 1 |
| 25387-00 | | 35- 20 -118B- 1 9 | 1 |
| 25393-13 | | 35- 20 -118B- 1 8 | 1 |
| 25394-00 | | 35- 20 -118B- 1 56 | 1 |
| 25397-00 | | 35- 20 -118B- 1 24 | 1 |
| 25478-00 | | 35- 20 -118B- 1 36 | 1 |
| 25481-00 | | 35- 20 -118B- 1 73 | 1 |
| 25488-00 | | 35- 20 -118B- 1 34 | 1 |
| 25530-01 | | 35- 20 -118B- 1 -135 | 1 |
| 25531-01 | | 35- 20 -118B- 1 143 | 1 |
| 25532-00 | | 35- 20 -118B- 1 140 | 1 |
| 25533-00 | | 35- 20 -118B- 1 141 | 1 |
| 25602-00 | | 35- 20 -118B- 1 126 | 1 |
| 25603-00 | | 35- 20 -118B- 1 101 | 1 |
| 25680-00 | | 35- 20 -118B- 1 53 | 1 |
| 25682-01 | | 35- 20 -118B- 1 19 | 1 |
| 25683-11 | | 35- 20 -118B- 1 85 | 1 |
| 25685-00 | | 35- 20 -118B- 1 93 | 1 |
| 25693-00 | | 35- 20 -118B- 1 144 | 1 |
| 25694-00 | | 35- 20 -118B- 1 131 | 1 |
| 25695-00 | | 35- 30 -118B- 1 130 | 1 |
| 25698-00 | | 35- 20 -118B- 1 72 | 1 |
| 25699-00 | | 35- 20 -118B- 1 71 | 1 |
| 25711-00 | | 35- 20 -118B- 1 109 | 1 |
| 25713-00 | | 35- 20 -118B- 1 117 | 1 |
| 25715-00 | | 35- 20 -118B- 1 154 | 1 |
| 25718-00 | | 35- 20 -118B- 1 155 | 1 |
| 25719-00 | | 35- 20 -118B- 1 125 | 1 |
| 25720-00 | | 35- 20 -118B- 1 123 | 1 |
| 25722-00 | | 35- 20 -118B- 1 158 | 1 |
| 25723-00 | | 35- 20 -118B- 1 57 | 1 |
| 25724-01 | | 35- 20 -118B- 1 156 | 1 |
| 25736-00 | | 35- 20 -118B- 1 58 | 1 |
| 25737-00 | | 35- 20 -118B- 1 2 | 1 |
| 25738-01 | | 35- 20 -118B- 1 -122 | 1 |
| 25875-00 | | 35- 20 -118B- 1 115 | 1 |
| 25879-00 | | 35- 20 -118B- 1 152 | 1 |
| 25882-00 | | 35- 20 -118B- 1 133 | 1 |
| 25883-00 | | 35- 20 -118B- 1 142 | 1 |
| 25885-00 | | 35- 20 -118B- 1 - 49A | 1 |
| 25886-00 | | 35- 20 -118B- 1 107 | 1 |

| PART NUMBER | AIRLINE PART NO. | CH-SECT-UNIT-FIG-ITEM | TTL REQ |
|---|---|---|---|
| 26164-01 | | 35- 20 -118B- 1 69 | 1 |
| 2837-01 | | 35- 20 -118B- 1 80 | 1 |
| 2837-02 | | 35- 20 -118B- 1 65 | 2 |
| | | 35- 20 -118B- 1 113 | |
| 28965-00 | | 35- 20 -118B- 1 90 | AR |
| 3-5 (COMP 77-545) | | 35- 20 -118B- 1 104 | 1 |
| 33359-213 | | 35- 20 -118B- 1 3 | 19 |
| | | 35- 20 -118B- 1 51 | |
| | | 35- 20 -118B- 1 86 | |
| 33359-215 | | 35- 20 -118B- 1 21 | 4 |
| 33359-228 | | 35- 20 -118B- 1 30 | 2 |
| 34131 | | 35- 20 -118B- 1 23 | 2 |
| 3501-02 | | 35- 20 -118B- 1 60 | 1 |
| 55573-00 | | 35- 20 -118B- 1 136 | 1 |
| 58526-00 | | 35- 20 -118B- 1 61 | 2 |
| 6472-82 | | 35- 20 -118B- 1 97 | 1 |
| 800325-00 | | 35- 20 -118B- 1 119 | 1 |
| 800376-00 | | 35- 20 -118B- 1 -149 | 1 |
| 800549-00 | | 35- 20 -118B- 1 - 85B | 1 |
| 800798-00 | | 35- 20 -118B- 1 - 85A | 1 |
| 800799-00 | | 35- 20 -118B- 1 - 85C | 1 |
| 802242-01 | | 35- 20 -118B- 1 - 70 | 1 |
| 802954-01 | | 35- 20 -118B- 1 - 50A | 1 |
| 802955-01 | | 35- 20 -118B- 1 - 29A | 1 |
| 802956-01 | | 35- 20 -118B- 1 - 2N | 1 |
| 802957-01 | | 35- 20 -118B- 1 20 | 1 |
| 8938-01 | | 35- 20 -118B- 1 137 | 2 |
| | | 35- 20 -118B- 1 139 | |
| 8938-04 | | 35- 20 -118B- 1 106 | 1 |